THE SPIRAL OF SILENCE REGARDING STUDENT WILLINGNESS TO DISCUSS CONTROVERSIAL TOPICS IN AGRICULTURE

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Bachelor of Science in Agriculture

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Cookeville, TN

2016

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 2017

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Date of Degree: DECEMBER, 2017

Title of Study: THE SPRIAL OF SILENCE REGARDING STUDENT WILLINGNESS TO DISCUSS CONTROVERSIAL TOPICS IN AGRICULTURE

Major Field: AGRICULTURAL COMMUNICATIONS

Abstract: There are many advantages for students who participate in classroom discussion including intellectual development and practice for critical thinking skills (Davis, 1993; Fassinger, 1995). However, only 25% of students actively participate in discussion (Karp & Yoels, 1976). Baldassare and Katz (1996) noted there are many situations in which someone is faced with a decision to express their opinion. Because most studies of the spiral of silence are completed by public opinion researchers and focus on broader issues with larger populations, there is a need to research this theory using different techniques within a diverse group of disciplines (Kennamer, 1990; Neuwirth & Frederick, 2004). This thesis seeks to determine the influence of the spiral of silence theory on agricultural education, communications, and leadership (AECL) students at Oklahoma State University (OSU) in sharing their opinions on current, controversial topics in agriculture, specifically organic agriculture, food labeling regulations, and antibiotic use in livestock. By using Noelle-Neumann's spiral of silence as the theoretical framework, an online questionairre based on Hayes, Shanahan and Glynn's (2001) instrument was sent to students to evaluate the following potential predictors that might cause a student's submission into silence: (a) public opinion, (b) cognizance, (c) self-efficacy, (d) environment, and (e) demographics. The findings of this study show OSU AECL students believe it is important to know the opinions of others regarding controversial topics in agriculture, more so with people who they are closer to. Students also reported their opinions align more with those involved in agriculture than those who are not. It was also found a student might be more willing to discuss controversial topics depending on their cognizance of each issue and the context or environment in which they find themselves. However, self-efficacy and demographics were not statistically significant predictors in this study. It is recommended future research in this area should focus on concrete observations of actual participant willingness as opposed to hypothetical willingness (Glynn, Hayes, & Shanahan, 1997) used in this study. By observing behaviors pertaining to the spiral of silence, professors could better prepare students to be more comfortable in sharing their opinions.

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CHAPTER I

INTRODUCTION

Facilitating student participation in classroom discussions is important because it cultivates the critical thinking skills and intellectual development of students (Fassinger, 1995). Davis (1993) lists many advantages for students who participate in discussion including "practice in thinking through problems and organizing concepts, formulating arguments and counter arguments, testing their ideas in a public setting, evaluating the evidence for their own and others' positions, and responding thoughtfully and critically to diverse points of view" (p. 63). Those who choose not to participate in classroom discussion or do not fully engage in the activity might receive less of a learning experience (Dallimore, Hertenstein, & Platt, 2009). According to Karp and Yoels (1976), only 25% of students in a classroom are involved and actively participate in discussion; half of that 25% tend to overshadow others in the discussion. Through the increase of participation from less vocal students, participants in class discussion will gain more practice "which then can enhance comfort over time" (Dallimore et al., 2009, p. 20).

"Public communication involves an exchange of information, a give-and-take of contending approaches to and definitions of the problem, and invariably entails social influence" (Allen & Price, 1990, p. 388). There are many real-life examples of situations in which someone is faced with a decision to express their opinion, such as social gatherings, responding to political polls, and everyday discussions with peers or coworkers (Baldassare & Katz, 1996). It would

seem, then, people depend on conflicting opinions and various points of view to continue discussion in our society. No matter whether one is completely aware of them or not, numerous considerations go into an individual's decision-making process to resort to silence or speak up (Lasorsa, 1991). Premeaux and Bedeian (2003) define *speaking up* as "openly stating one's views or opinions" (p. 1,538).

Submission to silence not only occurs during educational development but also follows students after graduation into the workplace. Bowen and Blackmon (2003) in their study on the effect of these decisions specifically in business settings coined the term *organizational voice* as, "a powerful source of organizational change" (p. 1,394). Although organizational voice can impact through a positive influence, "voice is voluntary" (Bowen & Blackmon, 2003, p.1,394) and, often, employees slide into a state of silence "even if they have valuable contributions that they could make" (p. 1,395). Tyan and Oestreich (1998) found employees perceived their participation in workplace discussions as precarious. Morrison and Milliken (2000) claimed, "many organizations are caught in an apparent paradox in which most employees know the truth about certain issues and problems within the organization yet dare not speak that truth to their superiors" (p. 706). Regardless if the employee had a new strategy for better marketing, insight to misconduct of other employees, or an idea to improve the company's daily operations, people fear uncertainty and would rather remain silent than face any negative repercussions that might be associated with speaking up (Morrison & Milliken, 2000).

Morrison and Milliken (2000) identified two major repercussions, although, it is possible other negative effects of speaking up could exist. One repercussion could be social ostracism, or fear of isolation, a major motive for a spiral into silence (Noelle-Neumann, 2003). Although the dynamics of the theory had been previously observed, Noelle-Neumann (2003) proposed her spiral of silence theory in 1974 to refer to people's tendency to evaluate their perception of public opinion regarding an issue before deciding whether to speak up or remain silent to avoid any type

of social isolation, the main cause of submission into the spiral suggested by the theoretical framework. Much research has been done on Noelle-Neumann's theory with some evidence showing fear of social ostracism as a possibility, however, the literature is unclear whether this fear is the primary cause of the spiraling effect (Kim, 2012).

Although most studies of the spiral of silence are completed by public opinion researchers, it is a complex theory that should be researched and tested using different techniques within a diverse group of disciplines (Kennamer, 1990). Because most of the spiral of silence research has focused on larger populations about broader issues (Neuwirth & Frederick, 2004), there seems to be a gap in the current literature. By looking at opinion climates that are more local in a specific industry, this research gap can begin to be filled. It is possible there are other identifiers to the spiral of silence. These identifiers, or potential predictors as referred to in this study, could be different for each industry, business, or person. Continuing research in specific industries, such as agriculture, builds upon the current knowledge of this theory and helps prepare students and employees for greater success and development within each specific industry.

Although some studies of the spiral of silence have focused on the field of agriculture, most topics focus primarily on genetic modification or other developments in biotechnology in which issues interfere with nature (Kim, 2012; Scheufele, Shanahan, & Lee, 2001). Support for the spiral of silence has been found with these types of issues (Scheufele et al., 2001); however, it is important to note the influence of moral and religious beliefs in regard to these issues (Kim, 2012; Scheufele et al., 2001). Priest (2006) proposed these types of moral-related issues could constitute a special case in regard to spiral of silence as "self-perceptions of degree of understanding and the frameworks of moral reasoning that are applied to science-related controversies" (Priest, 2006, p. 200). Regardless, there is a lack of research regarding the influence of the spiral of silence theory and a diversity of issues within the agricultural industry.

Purpose and Research Questions

The purpose of this study was to determine the influence of the spiral of silence theory on agricultural education, communications, and leadership (AECL) students in sharing their opinions on current, controversial topics in agriculture. The following research questions guided this study:

1. Where do students feel their opinions align in regard to those of different social groups;
2. Are students willing to discuss controversial topics in agriculture or are they victims to a spiral of silence; and
3. What factors could have an effect on a student choosing to remain silent when given the decision to discuss controversial topics in agriculture?

This thesis document is includes two manuscripts to help answer the listed research questions. Specific research objectives and purposes for each manuscript are included at the end of this chapter.

Literature Review

Theoretical Framework

The spiral of silence theory was proposed by Elisabeth Noelle-Neumann (1974), a German political scientist, with the following explanation:

> Observations made in one context spread to another and encouraged people either to proclaim their views or to swallow them and keep quiet until, in a spiraling process, the one view dominated the public scene and the other disappeared from the public awareness as its adherents became mute. This is the process that can be called a "spiral of silence." (p. 5)

Some individuals are more willing to speak up in a public setting than others (Noelle-Neumann, 2003). Noelle-Neumann identified many indicators regarding people's willingness to share their views, although the list is not exhaustive. Certain groups are typically more willing to express their opinions publicly; including men, younger generations, and those within a higher social class (Noelle-Neumann, 2003). However, the theory is not based entirely on demographics.

Other indicators of a reluctance to speak up could be fear of isolation, public opinion, or media influences (Noelle-Neumann, 2003). Noelle-Neumann (2003) compared silence to imitation as often people who remain silent about their opinions may get on board with someone else's, even if they do not necessarily agree with what is being said. She identified the following two motives for this: learning and fear of isolation (Noelle-Neumann, 2003). Noelle-Neumann's research shows most individuals will side with a majority opinion because they are fearful of being rejected by a societal group, even when they are certain the majority is in the wrong; this effect could lead to a conception their opinions were originally in the wrong (Noelle-Neumann, 2003). This fear of isolation depends on how others perceive public opinion. This alone should provide reason for more research involving public perception of opinion climate and willingness to speak up.

Although there is no set definition of "public opinion," Hermann Oncken, a German historian, published an article in 1914 in which he described it as "a Proteus, a being that appears simultaneously in a thousand guises, both visible and as a phantom, impotent and surprisingly efficacious, which presents itself in innumerable transformations" (as cited by Noelle-Neumann, 2003, p. 59). Oncken described the concept as so ambiguous that just when people feel they have a firm foundation built on the definition, it slips right through their fingers, time and time again (Noelle-Neumann, 2003). For the sake of research, Noelle-Neumann broke this concept into two parts.

She quoted Socrates when he said that opinion is a term often found somewhere between knowledge and ignorance (Noelle-Neumann, 2003), but opinion generally has a universal definition that is well understood. What becomes a little more complex is the meaning of the word public. Noelle-Neumann (2003) lists three standard definitions of public, but perhaps the most relevant to this study is the fact that public can be described as *social skin*, or what exposes people to the world and requires conformation to social norms. According to Noelle-Neumann (2003), "it is fear of isolation, fear of disrespect, or unpopularity; it is a need for consensus" (p. 62). Glynn (1997) describes public opinion as "an expression of the interaction between individuals' actual opinions and their perceptions of others' opinions" (p. 157).

Three key elements come together to provide an operational definition to this complex term for public opinion: (a) human ability to notice when people are in favor or against an issue, (b) reactions following this realization, and (c) fear that people will join in popular belief that could cause an individual with a different perspective to become isolated from society (Noelle-Neumann, 2003). Under these constructs, Noelle-Neumann (2003) built the following definition of public opinion for her research: "Opinions on controversial issues that one *can* express in public without isolating oneself" (pp. 62-63).

Predictors of the Spiral of Silence

Contrary to Noelle-Neumann's main assumption, some researchers agree silence on controversial issues is not created by a fear of social isolation. Many researchers have identified possible predictors to a submission to the spiral of silence. Salmon and Neuwirth (1987) and Salmon and Rucinski (1988) identified that social characteristics, demographics, issue salience, perception of majority opinion, and knowledge on the issue could be significant determinants when observing willingness to speak up about controversial topics. There are many potential causes of a submission to a spiral of silence. For the purposes of this study, the following five

predictors from current spiral of silence research were observed: (a) public opinion, (b) cognizance, (c) environment, (d) self-efficacy, and (e) demographics.

Public opinion. Noelle-Neumann's theory revolves around the concept of public opinion. Many researchers of the spiral of silence theory consider "public opinion as a form of social control" (Priest, 2006, p. 196). Typically, when someone speaks up on a certain issue, they begin to develop a sense of perceived public opinion. Individuals who believe they may be in the minority of the opinion climate, after observing a lack of support for their opinion, begin to fall into the spiral of silence as they keep their opinions to themselves (Kennamer, 1990). Kennamer hypothesized, "Individuals will be least likely to discuss an issue when they have been exposed to information that public opinion is opposed to their own positions and do not perceive primary group support for those positions" (p. 400).

There is literature to support and reject this hypothesis. For instance, Glynn, Hayes, and Shanahan (1997) found a positive correlation between an individual's willingness to speak up and perception of support for their opinion, but Salmon and Neuwirth (1990) found limited support for this claim. There could be many implications to these differing points of view including (a) misjudgment of public opinion, (b) locality of opinion climate, (c) media influence, and (d) Noelle-Neumann's concept of *hardcores,* "the minority that remains at the end of a spiral of silence process in defiance of the threats of isolation" (Noelle-Neumann, 2003, p. 170). These implications create a fostering environment for more research in public opinion.

Misjudgment of public opinion. Proper assessment of where one's opinion stands compared to others may have a direct relationship with the confidence of one's own opinion, which could in turn lead to a willingness to speak up (Fields & Schuman, 1996-1997; Lasorsa, 1991). These questions have been raised since Salmon and Neuwirth (1987) evaluated where people were getting their information from when formulating their own opinions. Kennamer

(1990) claims, "people are not very accurate perceivers of the opinions of others" (p. 393). Whether accurate or not, people's inability to conceive a proper assessment of public opinion will not halt them from doing so anyway (Noelle-Neumann, 1974).

This could be a serious problem when studying public opinion and willingness to speak up or remain silent. Louis, Duck, and Terry (2010) agree when they said, "false beliefs about support for one's position can consolidate erroneous views as well as reducing the likelihood of attitude change, and increasing the likelihood of speaking out" (p. 657). The public's concern about public opinion must be taken into consideration when applying this concept in research. Regardless, Lin and Salwen (1997) found college students tend to effectively assess their opinion climates, both in their hometowns and at their university. This ability to correctly assess local environments would suggest the next implication of locality.

Locality of opinion climate. People have criticized the speculations of perceiving a mass group of individuals, saying that it may have less of an impact on willingness to speak up than an individual's hometown (Salmon & Neuwirth, 1987). In a later study, Salmon and Neuwirth (1990) found "no evidence that a local opinion climate exerts a greater influence over individuals' willingness to express opinions than does a more distant (national) climate" (p. 576). However, Moy, Domke, and Stamm (2001) found in their results "it is perceptions of opinion in the 'micro-climate' or *one's immediate circle of family and friends* that are most closely linked to one's willingness to speak out" (p. 18). Granted there could be other influencers of willingness, it is important to note the research does show conflicting interests in this portion of the research.

Media influence. Many studies cite a positive relationship between media exposure and majority opinion (Glynn & McLeod, 1984; Neuwirth & Frederick, 2004; Salmon & Neuwirth, 1990). Noelle-Neumann listed three functions of the media: (a) the agenda-setting function, where the media directly tells society what to think; (b) the legitimation function, where the

media allows people to perceive their own opinion as acceptable; and (c) the articulation function where the media helps followers formulate their thoughts into actual words (Noelle-Neumann, 1974). Typically, "the media acts as agents of social change by presenting one opinion as dominant or desirable and an opposing opinion as declining or undesirable" (Salmon & Neuwirth, 1987, p. 5). When individuals believe they are a part of the dominant side of the argument, they are more willing to speak up than if they were a part of the suppressed, opposing side. (Salmon & Neuwirth, 1987).

The media plays a vital part in communications to the point where they can almost craft social control. Salmon and Oshagan (1988) offered the following scenario: "Campaign planners can control an information environment and make it appear their viewpoint or opinion dominates, [*sic*] they can create a self-perpetuating system in which their opinion actually will become dominant over time" (p. 6). When evaluating public opinion's effect on the spiral of silence, media influence must be assessed.

Hardcores. There are special cases for almost everything including willingness to speak up after observing a public opinion of a differing viewpoint. In one study, many respondents were hypothetically willing to express their opinion on certain issues, even if they were clearly in the minority of the public opinion (Salmon & Neuwirth, 1987). Lasorsa (1991) said this exception could result by a certain confidence of knowing you are right and the public is wrong. Regardless the reasoning, Noelle-Neumann (2003) defined these people as hardcores, "the minority that remains at the end of a spiral of silence process in defiance of the threats of isolation" (p. 170). This could be a limitation to many studies, regarding outliers in data collection.

Cognizance. When observing whether someone is willing to speak up or remain silent on a controversial topic in any industry, as suggested in current research, it could be important to understand the level of knowledge an individual has on the topic, how much they have noticed

the topic, and whether it is of interest to that person. Many researchers found issue salience to be a consistent predictor when evaluating a person's willingness to speak out publicly on controversial issues (Lin & Salwen 1997; Noelle-Neumann, 1991; Salmon & Kline, 1983).

In considering the impact of the spiral of silence in politics, Baldassare and Katz (1996) found "those who say they definitely intend to vote are more willing to speak out" (p. 152). Those who followed political races and views were more willing to speak out in four different surveys and found interest to be a significant predictor (Baldassare & Katz, 1996). Lasorsa (1991) also found paying attention to news media involving politics affected outspokenness pertaining to those topics. Granted, it could vary issue to issue, much research shows those who are interested in a topic will be more willing to speak out on that topic.

Lasorsa (1991) suggested "one might argue that people who use the news media and especially those who pay close attention to political news would be better able to gauge the climate of opinion" (p. 135), which would then lead to perception of public opinion. This claim is backed by the statement, "empirical evidence generated by spiral of silence researchers shows that media exposure is significantly related to majority opinion estimates" (Neuwirth & Frederick, 2004, p. 676). If one is interested in a topic, they then observe public knowledge to perceive the majority opinion; the public opinion and cognizance predictors basically go hand in hand. Priest (2006) noticed a similar correlation:

> Opinion researchers generally recognized that news media content is implicated in the formation of an opinion climate by virtue of its role in making some voices and viewpoints appear more visible, and therefore, more legitimate, more common, and more acceptable than others. (p. 197)

Priest (2006) also noticed a certain confidence that gave individuals who felt they understood their area of study, which gave them "social power of scientific rhetoric in United States culture"

(p. 211) when arguing with scientific knowledge in their back pocket. Salmon and Neuwirth (1990) found "there is clear evidence that knowledge and personal concern regarding an issue does play an important role in willingness to communicate about the issue" (p. 576) at hand. Therefore, it is vital to observe these qualities in individuals to assess their willingness to speak up about controversial topics.

Environment. The situation a person finds themselves in when they are deciding to share their opinion with others could be a great influential on a submission to the spiral of silence. Salmon and Neuwirth (1987) considered "that speaking to a TV reporter may evoke feelings of discomfort among older or less educated persons who may not feel as comfortable with technology, in general, as their younger or better educated counterparts" (p. 13). Perhaps, because of the lack of exposure to technology, the elderly do not have a working knowledge of issues portrayed on social media that youth do. However, would the elderly feel comfortable if talking to a high school or college class focusing on the same subject the TV reporter was covering?

When it comes to a classroom environment, class and student traits seem to be decent predictors of student participation in classroom discussion (Fassinger, 1995). Weaver and Qi (2005) pondered whether class size would heighten student fears pertaining to class participation. They express that "large classes permit greater anonymity, enable students to seat themselves at the periphery of the classroom, and thereby facilitate the strategic withdrawal of the majority" (pp. 572-573). Although this might not be a start into the spiral, this would give students with existing fears a vice to spiral further into their silence.

Other factors, such as gender of the professor or instructor, could influence student development in the classroom. Fassinger (1995) found slight-to-no significance when it came to males' self-perception of educational development. However, females were significantly involved when they took classes taught by female instructors. "Females were significantly more confident,

comprehended more, were more interested in the subject matter, and participated more in classes when their professors were female" (Fassinger, 1995, pp. 88-89). Granted, one cannot fill every classroom with female instructors, but it should be noted that those involved in the environment may have a certain significance when it comes to student willingness to speak up. Weaver and Qi (2005) observed student reports on ten causal variables when it came to classroom participation; they found that "*faculty-student interaction* seems to have the largest direct, indirect, and total effects on participation" (p. 591).

Knoll and van Dick (2013) understood from their research that employees are often silenced because "a climate where conformity is promoted and dissent is suppressed demotivates employees to participate" (pp. 350-351). This conformity leads to employees with beliefs that their opinion is undervalued or even unwanted by supervisors and other management (Morrison & Milliken, 2000). These same emotions are most likely felt by students in today's classroom. Fassinger's (1995) data recommended "that developing student confidence could be an instructor's first step in promoting class participation. . . starting a semester with discussion and exercises that encourage students to help strengthen their peers' confidence" (p. 93). By creating a comfortable learning environment, educators can only cater to students' needs. Fassinger (1995) even said professors' interpersonal style does not directly influence student participation in class, but "when professors create class activities that foster positive emotional climates, they are likely to help cultivate interaction" (p. 93). Fassigner's (1995) analysis suggested creating a comfortable learning environment will only increase the willingness of students to speak up in class.

Self-efficacy. Regardless of the setting and the climate of perceived public opinion, people who perceive themselves to be self-efficacious are more willing to discuss their opinions publically (Lasorsa, 1991). This is not necessarily related to certainty of the perceived opinion climate but might relate to a specific type of confidence (Lasorsa, 1991). Self-esteem has been shown to have a positive influence on individuals' willingness to speak out; individuals with low

self-esteem tend to fall into a spiral of silence "to avoid self-presentational risks associated with speaking up" (Premeaux & Bedeian, 2003, p. 1543). Lasorsa (1991) provided a detailed explanation of what self-efficacy is:

> It may be related to confidence in one's ability to change things beyond oneself, or *self-efficacy*. As used here, self-efficacy refers to the general perception that one has the potential for affecting change in the greater environment. Self-efficacy is similar to what Sigel and Hoskin (1981) call "feelings of personal competence," an umbrella concept under which they subsume such other related ones as "locus of control" (Rotter, 1966), and "self-esteem" (Rosenberg, 1965). (p. 134)

Self-efficacy essentially deals with how individuals perceive themselves and in turn seems to correlate directly with self-concept (Falanaga, De Caroli, & Sagone, 2014). "The self-concept concerns the image that every person builds of him/herself and could be defined as the sum of beliefs and feelings that individuals have about themselves" (Falanga et al., 2014, p 296).

People saying things to make themselves liked by others, changing what they say judging on the climate of opinion, and engaging in silence could all be negative influences to a person's willingness to speak up caused by their own personal anxieties (Willnat, Waipeng, & Detenber, 2002). These anxieties could lead to an overall fear of isolation stemming from a lack of Bandura's (1994) main sources of influence: "mastery experiences, seeing people similar to oneself manage task demands successfully, social persuasion that one has the capabilities to succeed in given activities, and inferences from somatic and emotional states indicative of personal strengths and vulnerabilities" (Bandura, 1994, p. 15). Fear of isolation has been studied by psychologists and defined as a "fear or anxiety in situations where a person experiences loneliness or lack of community" (Kim, 2012, p. 308). Kim (2012) found that fear of isolation had a significant relationship with a person's willingness to join discussion and interaction with a

present majority. “Those who have a greater fear of isolation in general should be less willing to express opinions in public” (Kim, 2012, p. 309).

When considering groups, it is important to assess the energy of those involved by looking at attitude strength, another significant predictor of willingness to speak up and “powerful motivator for breaking the spiral of silence” (Baldassare & Katz, 1996, p. 153). If one can develop a strong attitude and relationship among those they will be discussing with it could allow individuals to speak more freely about controversial topics. Bandura (1997) claimed, “self-efficacy affects choices and efforts employed to achieve a goal; it can be improved by means of specific social experiences and learning processes” (as cited in Falanga et al., 2014, p. 296). Thus, one should foster students’ learning environment by including these experiences to help learning development. However, in most situations, that is much easier said than done.

Demographics. Noelle-Neumann (1974) has found evidence that demographic characteristics, such as education level, urban vs. rural communities, family income, and age, can be significant identifiers when assessing those who are likely to speak out. Her findings show “that males, the youthful, the better educated, and those belonging to the higher social strata generally tend to speak out more politically” (Lasorsa, 1991, p. 135). Glynn and McLeod (1985) stated it is important to control such demographic variables to properly test public opinion; this could be a limitation to most public opinion research.

Salmon and Oshagan (1988) found the smaller the community the less likely someone is to speak up on what is perceived to be an unpopular opinion; they said “larger communities, by their nature, are characterized by greater diversity of points of view” (p. 18). Evidence can be seen those from smaller communities might feel a greater level of discomfort when expressing their opinions against the majority opinion (Salmon & Oshagan, 1988). Thus, with many agricultural students coming from rural communities, it would seem vital to understand where

those students come from and their experiences when gauging their willingness to speak out about agricultural issues.

Gender has also been studied as a significant indicator of silence. When evaluating participation in the classroom by different genders, Fassinger (1995) found male students to be more confident and involved, whereas, the female students were "more prepared for class, more interested in the subject matter, and more interested in peers' comments and questions" (p. 88). Both genders have identifiers that would allow them to willingly participate in classroom discussion, but they also have different reasons for remaining silent. "Women are significantly more likely to say their silence is due to poorly formulated ideas, ignorance about a subject, and fear of appearing unintelligent to peers" (Fassinger, 1995, p. 88). Young men on the other hand felt unprepared for classroom activities and feared, not necessarily social isolation, but a fear of receiving a bad grade (Fassinger, 1995).

Choosing Agricultural Topics

Most spiral of silence research has focused primarily on broad issues with relevance to a large population but has not looked at specific concerns across different opinion climates. (Neuwirth & Frederick, 2004). Other considerations such as testing the theory "in multiple issue contexts simultaneously" (Gearhart & Zhang, 2015, pp. 1-2) and utilizing issues with strong emotional components dealing with morality concerns on highly controversial topics (Noelle-Neumann, 1989) are other things to consider when selecting methodology for a research project dealing with the spiral of silence theory.

Yeric and Todd (1996) address three categories of issues that are of public interest: (a) *enduring* issues, (b) *emerging* issues, and (c) *transitory* issues. "Issues that remain in the public eye over a number of years. . . are called enduring issues" (Yeric & Todd, 1996, p. 165). To become enduring, an issue must first become emerging, which are relatively new to the public

(Yeric & Todd, 1996). The last category of public interest issues is transitory. These types of issues are not prevalent for a long period of time, but they do have an act for coming in and out of the spotlight quite frequently (Yeric & Todd, 1996).

Organic Agriculture. When performing research on consumer perceptions comparing organically grown and conventionally produced foods, there is an attempt to discover levels of knowledge and what people believe about each practice (Yiridoe, Bonti-Ankomah, & Martin, 2005). Yiridoe et al. (2005) concluded the general population perceives conventional practices "tend to have long-term health implications and adverse effects on the environment" (p. 198), whereas "consumers purchase organic foods because of a perception that such products are safer, healthier [*sic*] and more environmentally friendly" (p. 198). Many studies suggest consumers in the U.S. were willing to pay a 37% premium for organic products, but as the premium increases, willingness to pay decreases (Yiridoe et al., 2005).

Thompson (1998) noticed studies observing consumer behavior of organic products in the market setting is nearly nonexistent. "Studies of consumer demand for organic products have relied almost exclusively on self-reporting of purchase behavior and attitudes as elicited through questionnaires or interviews" (Thompson, 1998, p. 1113). There are many studies that evaluate characteristics of the organic consumer. Typically, those who are more apt to buy organic products are households with young children (Hughner, McDonagh, Prothero, Shultz II, & Stanton, 2007), women (Yiridoe, et al., 2005) and households with more female members (Thompson, 1998) although household size was not a significant variable (Thompson, 1998). Yiridoe et al. (2005) found income to be an insignificant variable, however, this goes against the findings of Thompson (1998) who found national surveys suggest the opposite. Thompson (1998) also found age to be an interesting variable as "the highest percentage of consumers having bought organic produce were in the 18-29 and 40-49 age brackets, whereas the ag-group least likely to buy is the over-60 bracket" (p. 1,116).

Food Labeling Regulations. By using proper labeling techniques, firms can expand their brand by generating the potential for premiums through marketing desirable product attributes, such as "organic, eco-labeled, and other quality differentiated foods" (McCluskey & Loureiro, 2003, p. 95) or by claiming "products were produced with sound environmental, animal-welfare, and fair-labor practices" (p. 95). Much research has focused on consumers' preference for labeling programs, be it mandatory or voluntary, but these studies have typically focused on a regional scope or willingness-to-pay rather than examining consumer preferences (Loureiro & Umberger, 2007). For example, McCluskey and Loureiro (2003) found "male shoppers were willing to pay an extra 26% to avoid genetically modified animals and plants, while female shoppers were willing to pay an extra 49.3%" (p. 97); this could be because "women generally are more concerned with food safety" (p. 97). McCluskey and Loureiro (2003) conclude an increase in demand for products that are "high quality, health, and social-responsibility concerns" (p. 101) will optimize marketing tactics through advanced labeling techniques.

Government agencies in the U.S. have placed more focus on information provision programs, such as food labeling techniques, because they can influence economic behavior. (Caswell & Mojduszka, 1996). "Labeling regulations results in a basic transformation of the information environment in markets for quality attributes" (Caswell & Mojduszka, 1996, p. 1251). It can be concluded federal labeling regulations could influence consumer choice to some degree. For instance, according to Roe and Teisl (2006), "consumers perceive that products with No-GM [genetically modified] content will cause fewer long term health problems than products that explicitly claim GM content, but this difference is only statistically significant when claims are certified by the USDA" (p. 59). However, when labels claim to have improvements for food safety, inquiries start to be raised by consumers about how these improvements were obtained (Toe & Teisl, 2006).

Antibiotic Usage in Livestock Production. Society has set forth an expectation that foods to be consumed by the human population must be safe and nutritious, however the level of uncertainty among consumers has risen in years past (Werbeke, Frewer, Scholderer, & De Brabander, 2006). Risk management staff are learning how public perceptions of risks and benefits must be carefully considered in order to implement a new technology or product (Verbeke, et al., 2006). According to Raymond, Wohrle, and Call (2006) little information has been presented to the public describing specific techniques and practices of antibiotic usage in livestock, even with the extensive use of these antimicrobials in the industry. "Be it hormone or veterinary drug residues, chemical environmental contaminants or microbial pathogens, their real or perceived presence in food results in increased risk perception and other consumer public policy concerns" (Verbeke et al., 2006, pp. 2-3).

Overall, Verbeke et al. (2006) concluded an overestimation of risk to the probability of harm and although people are able to distinguish different risks as a whole, they do not differentiate the different risks within one single food group. Verbeke et al. (2006) continued:

> Perceptions of technological risks are shaped by beliefs that the risks are out of control are unnatural . . . somehow adding to the already existing risk environment, which all contribute to explaining their [the consumer] greater perceived harmful – and seriousness. (p. 5)

The Two Manuscripts

In this thesis, manuscript one, included as Chapter 3, focuses on student perceptions of the public opinion climate regarding controversial topics in agriculture leading toward Noelle-Neumann's spiral of silence theory. The purpose of this manuscript was to determine the influence of the spiral of silence on agricultural education, communications, and leadership

(AECL) students in sharing their opinions on current, controversial topics in agriculture. This study included the following objectives:

1. Determine how important it is for AECL students to understand the public opinion climate of different social groups; and
2. Describe where AECL students' feel their opinions on current, controversial topics in agriculture align with the public opinion of these issues within certain social groups.

The second manuscript, included as Chapter 4, uses the spiral of silence theory to observe other possible predictors to student submission to silence on the controversial topics referenced in the first manuscript. The purpose of the second manuscript was to observe potential predictors impending the agricultural education, communications, and leadership student's willingness to speak up regarding controversial topics in agriculture. This study was guided by the four following research objectives:

1. Determine the AECL students' willingness to discuss controversial, agricultural issues in multiple environments;
2. Observe the relationship between students' cognizance of agricultural issues and their willingness to speak up about these issues;
3. Observe the relationship between students' perceived self-efficacy and their willingness to speak up; and
4. Identify the demographics of respondents to see if they correlate to student willingness to speak up.

Both manuscripts were formatted for the Journal of Applied Communications, a quarterly, peer-reviewed professional journal published by the Association for Communication Excellence. The two manuscripts fall under the fourth research priority of the 2016-2020 American Association for Agricultural Education National Research Agenda (2016) regarding "Meaningful, Engaged Learning in All Environments" (p. 37), but specifically answers the third

research question of the priority: “How can delivery of education programs in agriculture continually evolve to meet the needs and interests of students?” (p. 39)

CHAPTER II

METHODS

The purpose of this study was to determine the influence of the spiral of silence on agricultural education, communication, and leadership (AECL) students when sharing and discussing their opinions on current, controversial topics in agriculture. Items included in this section are the protocol for research, a background of the target population, the procedures, and the measures used for data analysis.

IRB Protocol

To comply with the policies of Oklahoma State University (OSU) and federal regulations, collection of data did not begin until after proper application, review, and approval from the OSU Office of Research Services and the Institutional Review Board. The official approval notification for this study, application number AG1747, can be found in Appendix A of this document.

Participants

The population for this research project was AECL undergraduate students at OSU. The department consists of 370 undergraduate students hailing from 28 states ("Enrollment Data," 2017). Of the students in the department, 259 are female (70%) and 111 are male (30%). According to the department enrollment data, the ethnicity of the students studying within the

department is predominately White/Caucasian (80.5%). Other ethnicities represented in the department include American Indian (6.5%), Hispanic (3%), Black/African American (1.1%), Asian (.3%), and Nonresident Alien (.3%) with 8.4% self-reported as multiracial ("Enrollment Data," 2017).

The student population in the department includes students with primary and secondary majors in agricultural education, communications, and leadership, including 143 (38.6%) students with a primary major in agricultural communications; 110 students (29.7%) with agricultural education; and 48 students (13%) with a primary major in agricultural leadership. However, when including secondary majors, there are a total of 189 agricultural communications majors, 128 agricultural education majors, and 48 agricultural leadership majors. The junior class is the largest with 100 students (27%), followed by the senior class with a total of 95 students (25.7%), the sophomore class has 91 students (24.6%), and the freshman class is the smallest class comprised of 84 students (22.7%). All students studying agricultural education, communications, or leadership as primary or secondary major were invited to participate in this research.

Of this population of 370 students, 59 responded for a 15.9% response rate. Although this response rate is not ideal, it is expected as the average response rate for e-mail surveys has experienced a decreasing trend, even though the method of disbursal itself has increased (Shehan, 2001). In fact, Bikart and Schmittlein (1999) have found "response rates are declining for all types and manner of surveys" (as cited in Shehan, 2001).

There could be many reasons as to why people do not respond to surveys in general, but perhaps the most occurring in the research is *survey overload*, also known as *over-surveying* (Baruch & Holtom, 2008; Shehan, 2001). Baruch and Holtom (2008) conclude the result of over-surveying involves "a large number of target individuals or firms who are fatigued and therefore refuse to respond to non-essential questionnaires" (p. 1142). Shehan (2001) mentions the

overload could lead people to delete unsolicited e-mails or utilize filtering software to avoid receiving such surveys as the one used in this study. Other reasons for not responding to questionnaires could vary. In a 1996 study with a 33% response rate, Fenton-O'Creevy found the following reasons a random selection of nonrespondents did not participate: "too busy (28%), not considered relevant (14%), address unavailable to return the questionnaire (12%), and cases when it was company policy not to complete surveys (22%). The remaining 24% did not state clear reasons" (as cited in Baruch & Holtom, 2008). Although not all these reasons are applicable to this study, it is important to note the variety in why people do not respond.

There are disadvantages of low response rates because higher response rates lead to a higher level of credibility and representation of the focused population (Baruch & Holtom, 2008; Dillman, Smyth, & Christian, 2014) and the results of respondents and nonrespondents could vary leading to a nonresponse error (Dillman et al., 2014; Shehan, 2001); however, nonresponse bias can also happen in surveys with a high response rate as well (Dillman et al., 2014). In fact, Dillman et al. (2014) wrote, "the common mistake sometimes made by novice surveyors is to consider response rate as an adequate indicator of whether nonresponse error exists" (p. 6). Although any tier nonresponse could lead to bias, it does not mean that bias necessarily exists (Baruch & Holtom, 2008) because Dillman et al. (2014) wrote response rate is:

> An indirect indicator . . . The more important response quality indicator is nonresponse error, which occurs when the characteristics of respondents differ from those who choose not to respond in a way that is relevant to the study results. (p. 5)

Baruch and Holtom (2008) note it is more important the respondents properly represent the population of the study, making sure there is not a systematic difference between the respondents and the overall population. With this in mind, it was vital to compare the respondents to the entire population as far as demographics were concerned. The sample of respondents for

this research was comparable to the AECL total student population in terms of gender, race, and area of study, with some variance in classification.

When considering respondents' reported sex, 79.4% were female, as compared with 70% of the AECL student population. Race of the sample included: White, 88.2%; Native American/American Indian, 5.9%; and Hispanic, 2.9%. This was compared to the diversity in the population of White, 80.5%; Native American/American Indian, 6.5%; and Hispanic, 3%. The area of study of the sample was divided up with 29.4% listing their major concentrated in communications, 23.5% in education, and 14.7% in leadership with 32.4% listing as a double major; this was compared to the overall population divided as primary majors being communications, 38.6%; education, 29.7%; and leadership, 13%. For the most part comparisons were similar, but the classification of students had more variability. The sample of respondents included freshmen, 8.8%; sophomores, 17.6%; juniors, 23.5%; and the senior class, 38.2%; whereas the population is divided as freshmen, 22.7%; sophomores, 24.6%; juniors, 27%; and seniors, 25.7%. Basically, more seniors were willing to respond whereas; the freshman class was not well represented.

There is a tendency for low response rates to be problematic in research, however it is good to publish these results because "researchers are not always interested in generalizing results to a population" (Privitera, 2017, p. 251). Blair and Zinkhan (2006) provide some explanation to this proposition:

> To establish some eternal validity, researchers often use survey results to instead generalize to a theory, called theoretical generalization, or generalize to other observations, called empirical generalization . . . As long as survey results are rooted in existing theories and data, researchers can afford to be lenient [to some extent] about sample quality in academic research (Privitera, 2017, p. 251).

The literature does provide information to help increase the response rates for e-mailed surveys. Shehan (2001) found reminder messages increased e-mail survey responses by 25%; this was a tactic utilized in this study. Dillman et al. (2014) also suggest follow-up, along with respondent-friendly questionnaires that are shorter in length and the use of incentives, two methods that were not used in his study, to increase the likelihood of population cooperation. Since the study focused on three different agricultural issues, a larger questionnaire had to be used. With the distribution of the instrument to each individual member of the population and to keep confidentiality, it was difficult to offer incentives without asking for participant information. Regardless of the many different techniques, Wang & Doong (207) say researchers will always "struggle for respondents' cooperation against the increased competition with marketers and spammers on the internet" (p. 7).

Procedures & Data Analysis

Contact

Wang and Doong (2007) found significant advantages to collecting data through email surveys including "a fast response speed, lower cost, improved accuracy in encoding data, flexibility to fit the necessary conditions of particular research studies" (p. 3) and greater access to a wider audience; in this study, the e-mail method allowed the researchers to reach out to every individual in the population versus a select sample.

Therefore, AECL students were invited via email to participate in the study through the email list for OSU's AECL department. Upon clicking the anonymous link embedded in the email, participants were redirected to the survey designed using Qualtrics Software. Participants were informed the survey would take approximately 15-20 minutes to complete. Students were also informed that by choosing to participate in the survey, they consent to their responses, which were treated confidentially, being used for research in the field of agricultural education,

communications, and leadership. Following the initial email, two reminders were sent in one-week intervals. The three emails can be found in Appendix C.

A limitation of the study lies with the initial contact of the department. The original survey was distributed to 608 individual email addresses in the AECL department, including faculty and duplicate students. This was because the email lists for the department are divided into the three areas of study: education, communications, and leadership. Therefore, the email lists included students with those majors and the faculty who teach in those areas. The first email was sent to a combined list of emails for each of the three areas of study in the department. However, upon realization of this incident, the reminder emails were sent to a list in which duplicate students were removed. The assumption was made that faculty would notice the directions of the email asking for student participation and not participate themselves. Also, since the questionnaire was fairly long in terms of length, an assumption was made that students would only participate in responding to the instrument once. However, it is possible some survey responses were duplicated.

The Instrument

The instrument for this study, found in Appendix B, was adapted from Hayes, Shanahan, and Glynn's (2001) study to assess student willingness to express opinions in a realistic situation. They chose highly controversial topics that were then prevalent in the media for students to consider the degree they thought others believed what they believed (Hayes et al., 2001). Students were then asked to rank the agricultural issues in the order they would be willing to discuss them (Hayes et al., 2001). "We reasoned that people would tend to rank relatively low those topics that they would prefer not to discuss and rank high those topics that they would be willing to discuss" (Hayes et al., 2001, p. 51). Although the Hayes et al. (2001) instrument was not able to be retrieved, a portion of the study was replicated and modified for part of the instrument used in this

study. Other components were crafted to give an insight to other possible predictors of the spiral of silence.

Gearhart and Zhang (2015) wrote that it is crucial to test the spiral of silence through multiple issue contexts, therefore, it would only be beneficial to select issues that could fit into each of the three categories put forth by Yeric and Todd (1996). The instrument for this study asked participants to consider how they formulated their opinions and beliefs on three agricultural issues: (a) organic agriculture, (b) food labeling regulations, and (c) antibiotic use in livestock. Each of the following agricultural issues were selected using the suggestions of Yeric and Todd (1996).

Organic agriculture has seen a 20% increase per year since 1994 (Kuepper, 2010). Although this sector began early in the twentieth century, the beliefs about organic agriculture leading the arguments for debate, organic foods are healthier and assertion they induce pest and disease resistance, continue to drive today's market (Kuepper, 2010). The prevalence of organic agriculture over time gave validity to its selection as an enduring issue.

Food labeling can be traced back to 1906 when the Food and Drug Administration (FDA) was authorized to provide labeling information regarding the amount of food, its ingredients, and the common name (Nielson, 2017). A movement began in 1973 to label food in regard to its nutritional value, and nutrition labeling standards were again evaluated in 1990 with the Nutrition Labeling and Education Act (Nielson, 2017). Recently, in 2016, the regulations were amended to help consumers make healthy decisions (Nielson, 2017). Because of the cycle this issue follows by emerging and disappearing from public discussion, food-labeling regulations was placed in the transitory category.

Although antibiotic use has been used in livestock for some time now, it plays a large role in antibiotic resistance, an emerging health crisis as seen by the public (Landers, Cohen,

Wittum, & Larson, 2012). Landers et al. (2012) wrote, "Although the majority of antibiotic use occurs in agricultural settings, relatively little attention has been paid to how antibiotic use in farm animal contributes to the overall problem of antibiotic resistance" (p. 4). Because health risks to humans and the benefits to production animals have not been researched in depth, "it is evident that at present, the resources devoted to studying the role of antibiotic use in food animals . . . are insufficient" (Landers et al., 2012, p. 21). This recent activity and gap in the literature provide validity for antibiotic use in livestock to be an emerging issue.

Along with Gearhart and Zhang's (2015) suggestion to test the theory in multiple issue contexts, Noelle-Neumann (1989) proposed to use issues with strong emotional components dealing with morality concerns on highly controversial topics. Oulton, Dillon, and Grace (2007) defined controversial be having a significant amount of individuals argue on a given topic without reaching an agreement. These arguments might surface because of a scientific endeavor to resolve a given social, economic, or political problem to reach consensus (Oulton et al., 2007). All three agricultural issues selected for this study can be considered controversial, shown by the following research.

Since its emergence, organic agriculture has been more of a radical social movement to form a resistance in a world of conventional practices (Vos, 2000). In fact, Vos (2000) wrote, "it is problematic to refer to the movement as if it were one homogenous entity, with a more or less unified position" (p. 251). Regarding food labeling regulations, Klintman (2002) examined what was claimed to be "one of the most intensely disputed controversies in the public debate over genetically modified (GM) food" (p. 71); this controversy was how these types of foods should be labeled. Graham, Boland, & Silbergeld (2007) found controversy with antibiotic use in livestock. With arguments including their increased antibiotic-resistance in humans, their effect on production costs, and much more, antibiotics used in livestock for human consumption hold much controversy as well (Graham et al., 2007).

Although participants were asked to consider their opinions on the three controversial topics in agriculture when responding, the instrument did not ask participants to share their actual thoughts on these topics. The instrument also asked participants what channels they use to receive their news and identify the current, public perception of agricultural topics, or if knowing the public opinion of certain groups was important or not.

Measures

The first three pages of the online instrument used the same Likert-type scales to evaluate participants' views regarding the emerging, transitory and enduring agricultural issues. Each agricultural issue presented participants with three sections of questions. The first section included a five-point Likert-type scale with responses that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants were asked to select the best response that demonstrated how they felt about each issue. The statements included (a) I believe this issue is highly controversial; (b) this issue is of high concern to my interests; (c) I am knowledgeable about this particular issue; (d) I enjoy engaging, discussion, and learning about this topic; (e) I have seen this issue presented in the news, on social media, or other sources quite often; (f) I have strong opinion(s) about this issue; and (g) I would have an open mind when hearing a variety of opinions on this issue.

The second section asked participants where they believed their opinion(s) regarding each agricultural issue fell in line with the opinion(s) of the following groups: (a) the general U.S. population, (b) those involved in agriculture across the U.S., (c) students of OSU, (d) students enrolled in CASNR (College of Agricultural Sciences and Natural Resources) at OSU, and (e) students studying agricultural communications at OSU. A question asking about students studying agricultural communications at OSU was not analyzed after a decision of the graduate committee to send the survey to the entire OSU Department of Agricultural Education, Communications and Leadership, instead of primarily agricultural communications majors. The

four-point Likert-type scale had values of 1 (*definitely minority*), 2 (*uncertain, but probably minority*), 3 (*uncertain, but probably majority*), and 4 (*definitely majority*).

The third section prompted participants to rate the following scenarios in which a student might have the opportunity to express their opinion: (a) sitting at the dinner table with your family, (b) discussing with other students in the classroom, (c) an advisory meeting with their academic advisor, (d) on the campus lawn with friends not involved in agriculture, (e) campaigning to other students passing by in the University Center, (f) sharing an article or status update on social media, and (g) interviewing with a state or national news channel. The five-point Likert-type scale represented student responses for seven items ranging from 1 (*extremely comfortable*) to 5 (*extremely uncomfortable*), with corresponding numbers of the scale in between; the scores for each response on this scale were totaled for a comfort level score, which was used to correlate other predictors with students' comfort in speaking up. Cumulative scores could range from 7 to 35.

The fourth portion of the survey asked participants about their communication channels and how often they use them verses how participants perceive their usefulness. Both questions asked about the same types of communication channels: (a) newspapers, magazines, and other print media, (b) TV news and radio, (c) interpersonal discussion (face-to-face, phone calls, texting, emails, texting, etc.), and (d) Facebook, Twitter, and other social networking sites. The first Likert-type scale asked participants to what level they agree each channel was useful for finding out what most people think about agricultural issues ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). The second scale asked participants how often they use the listed communication channels to receive their news with the following scale representations: 1 (*never*), 2 (*once a month*), 3 (*once a week*), 4 (*daily*), and 5 (*numerous times a day*).

To evaluate the importance of student perception of the current opinion climate, the fifth portion of the survey asked participants how important it was to them to find out what the following groups are thinking about controversial agricultural issues/topics in general: (a) my close family/friends, (b) other students with my major, (c) other students in my agriculture classes, (d) other students on campus, and (e) other people in my community or state. The five-point Likert-type scale ranged from 1 (*important*) to 5 (*unimportant*).

Self-efficacy was evaluated using Schwarzer and Jerusalem's (1995) *generalized self-efficacy scale*. It was created to quantify a perception of one's self through predicting an individual's self-belief to adapt to stressful situations that arise in daily life (Schwarzer & Jerusalem, 1995). The scale's 10 items are laid out in the form of a Likert-type scale, ranging from 1 (*not at all true*) to 4 (*exactly true*); it is designated for the adult population, including adolescents, to tabulate a generalized self-efficacy score (Schwarzer & Jerusalem, 1995). The responses to the 10 items were totaled with a range of 10 to 40, with 40 representing a higher sense of self-efficacy than 10 (Schwarzer & Jerusalem, 1995).

The final portion of the instrument was used to determine the demographics of the respondents. Demographics included sex (male, female), ethnicity/race (White, Hispanic/Latino, Black/African American, Native American/American Indian, Asian/Pacific Islander, other), age, classification in school (freshman, sophomore, junior, senior, graduate, other), major (agricultural communications, agricultural education, agricultural leadership, double major), and home residency (rural: farm; rural: non-farm; suburban; urban). Participants were also asked to select all of the following agricultural experiences that apply to them: (a) I was raised on a farm; (b) I have worked on a farm; (c) I have visited a farm, but was not raised nor worked on a farm; (d) I participated in agricultural events/competitions (Participants were asked to provide the highest level of these events); (e) I was/am an active member of FFA/4-H; (f) I served as an officer in FFA/4-H (Participants were asked to provide the highest level of these leadership roles); (g) I am

actively involved in at least one student organization in the College of Agricultural Sciences and Natural Resources; and (h) I am actively involved in a campus organization outside of the College of Agricultural Sciences and Natural Resources.

Validity and Reliability

For validity and reliability purposes, the researcher's thesis committee comprised of three faculty members within the OSU Department of Agricultural Education, Communications, and Leadership who served as a panel of experts that reviewed the instrument and advised changes before submission to the Institutional Review Board for approval. The original instrument, adapted from Hayes et al. (2001), used the original researcher's technique in asking students to think about the degree their opinions aligned with those in the public. However, instead of asking students to rank agricultural issues in the order they would be willing to discuss, students were inquired about their opinions on each issue to gain insight to the other predictors observed in the study. The panel of experts gave suggestions and approved these modifications to the original instrument of Hayes et al. (2001) as well as discussed the list of potential agricultural issues and their research to identify the three used for this study.

For reliability purposes regarding the generalized self-efficacy scale put forth by Schwarzer and Jerusalem (1995), no changes were made to the original instrument; it was merely included as part of the instrument for this study. However, the scale for student comfort levels gained its reliability by running Cronbach's alpha for the scale in each of the agricultural issues. For organic agriculture, Cronbach's alpha was 0.849; for food labeling regulations, 0.901; and for antibiotic use in livestock, 0.872. Although there are differences among academics regarding Cronbach's alpha standard values, acceptable values range from 0.70 to 0.95 (Tavakol & Dennick, 2011). With recommendations by Tavakol and Dennick (2011), the correlation of each

test item was computed and evaluated to see if it was needed. Upon evaluation, no items were removed or added to the scale. The scale was also evaluated by the panel of experts.

In determining correlations for the potential predictors, a 0.05 p-value was set as a priori. Cohen's (1992) effect sizes were reported. Supplemental information is needed when using statistical significance because "it provides the reader with only a partial explanation of the importance or significance of the results" (Kotrlik, Atherton, Williams, Jabor, 2011, p. 133) and should instead present "the strength of association or correlation ratios" (Kotrlik et al., 2011, p. 133). Aarts, van den Akker, and Winkens (2014) conclude the addition of effect sizes need to be added when testing statistical significance. Cohen (1992) proposed "operational definitions small, medium, and large values for each that are at least approximately consistent across the different ES [effect size] indexes" (p.156). Those effect sizes are 0.10, 0.30, and 0.50, respectively (Cohen, 1992).

Other Limitations

When assessing public opinion Salmon and Kline (1983) have noticed, though Noelle-Neumann argues perception of opinion climate determines willingness to speak up, most of her data has consistently analyzed actual congruence of public opinion. This could be an important step in laying out future research methodology for both spiral of silence research and public opinion research. However, Kennamer's (1990) work should also be kept in mind that people generally are not great at perceiving public opinion. Therefore, the focus of this study was to determine participants' perception of public opinion and not their actual opinion congruence.

One must also remember there are special cases to people speaking out. Louis, Duck, and Terry (2010) suggest, "people may feel a need to speak out when they perceived that their views are losing ground, providing evidence for active resistance rather than a spiral of silence on the part of the losing side" (p. 670). This initiation to speak up could fall in line with Noelle-

Neumann's concept of hard cores, who Baldassare and Katz (1996) noted to be "immune to the fear of isolation" (p. 153). It is important to note, in spiral of silence research, these outliers are expected.

A limitation of the second manuscript was the reliability of the comfort level scores calculated from the Likert-type scale of the seven items examining student comfort to discuss in different situations. Although many researchers suggest more items provide greater reliability, no exact guidelines exist for number of items on a scale (Hinkin, Tracey, & Enz, 1997). It is also important scales are consistent, short to minimize biases formulated by fatigue, and that reliability can be attained (Hinkin et al., 1997). Therefore, the seven-item scale was developed to encompass different situations relevant to students. Hinkin et al. (1997) also suggested scales should be pretested, which was not done in this study.

CHAPTER III

STUDENT PERCEPTIONS OF PUBLIC OPINION REGARDING CONTROVERSIAL TOPICS IN AGRICULTURE

Facilitating student participation in classroom discussions is important because it cultivates the critical thinking skills and intellectual development of students (Fassinger, 1995). Davis (1993) lists many advantages for students who participate in discussion including "practice in thinking through problems and organizing concepts, formulating arguments and counter arguments, testing their ideas in a public setting, evaluating the evidence for their own and others' positions, and responding thoughtfully and critically to diverse points of view" (p. 63). Those who choose not to participate in classroom discussion or do not fully engage in the activity might receive less of a learning experience (Dallimore, Hertenstein, & Platt, 2009). According to Karp and Yoels (1976), only 25% of students in a classroom are involved and actively participate in discussion; half of that 25% tend to overshadow others in the discussion. Through the increase of participation from less vocal students, participants in class discussion will gain more practice "which then can enhance comfort over time" (Dallimore et al., 2009, p. 20).

"Public communication involves an exchange of information, a give-and-take of contending approaches to and definitions of the problem, and invariably entails social influence" (Allen & Price, 1990, p. 388). There are many real-life examples of situations in which someone

is faced with a decision to express their opinion, such as social gatherings, responding to political polls, and everyday discussions with peers or coworkers (Baldassare & Katz, 1996). It would seem, then, people depend on conflicting opinions and various points of view to continue discussion in our society. No matter whether one is completely aware of them or not, numerous considerations go into an individual's decision-making process to resort to silence or speak up (Lasorsa, 1991). Premeaux and Bedeian (2003) define *speaking up* as "openly stating one's views or opinions" (p. 1,538).

Submission to silence not only occurs during educational development but also follows students after graduation into the workplace. Bowen and Blackmon (2003) in their study on the effect of these decisions specifically in business settings coined the term *organizational voice* as, "a powerful source of organizational change" (p. 1,394). Although organizational voice can impact through a positive influence, "voice is voluntary" (Bowen & Blackmon, 2003, p.1,394) and, often, employees slide into a state of silence "even if they have valuable contributions that they could make" (p. 1,395). Tyan and Oestreich (1998) found employees perceived their participation in workplace discussions as precarious. Morrison and Milliken (2000) claimed, "many organizations are caught in an apparent paradox in which most employees know the truth about certain issues and problems within the organization yet dare not speak that truth to their superiors" (p. 706). Regardless if the employee had a new strategy for better marketing, insight to misconduct of other employees, or an idea to improve the company's daily operations, people fear uncertainty and would rather remain silent than face any negative repercussions that might be associated with speaking up (Morrison & Milliken, 2000).

Morrison and Milliken (2000) identified two major repercussions, although, it is possible other negative effects of speaking up could exist. One repercussion could be social ostracism, or fear of isolation, a major motive for a spiral into silence (Noelle-Neumann, 2003). Although the dynamics of the theory had been previously observed, Noelle-Neumann (2003) proposed her

spiral of silence theory in 1974 to refer to people's tendency to evaluate their perception of public opinion regarding an issue before deciding whether to speak up or remain silent to avoid any type of social isolation, the main cause of submission into the spiral suggested by the theoretical framework. Much research has been done on Noelle-Neumann's theory with some evidence showing fear of social ostracism as a possibility, however, the literature is unclear whether this fear is the primary cause of the spiraling effect (Kim, 2012).

Although some studies of the spiral of silence have focused on the field of agriculture, most topics focus primarily on genetic modification or other developments in biotechnology in which issues interfere with nature (Kim, 2012; Scheufele, Shanahan, & Lee, 2001). Support for the spiral of silence has been found with these types of issues (Scheufele et al., 2001); however, it is important to note the influence of moral and religious beliefs in regard to these issues (Kim, 2012; Scheufele et al., 2001). Priest (2006) proposed these types of moral-related issues could constitute a special case in regard to spiral of silence as "self-perceptions of degree of understanding and the frameworks of moral reasoning that are applied to science-related controversies" (Priest, 2006, p. 200). Regardless, there is a lack of research regarding the influence of the spiral of silence theory and a diversity of issues within the agricultural industry.

Purpose and Objectives

The purpose of this study was to determine the influence of the spiral of silence on agricultural education, communications, and leadership (AECL) students in sharing their opinions on current, controversial topics in agriculture. This study included the following objectives:

1. Determine how important it is for AECL students to understand the public opinion climate of different social groups; and

2. Describe where AECL students' feel their opinions on current, controversial topics in agriculture align with the public opinion of these issues within certain social groups.

Literature Review

Theoretical Framework

The spiral of silence theory was proposed by Elisabeth Noelle-Neumann (1974), a German political scientist, with the following explanation:

> Observations made in one context spread to another and encouraged people either to proclaim their views or to swallow them and keep quiet until, in a spiraling process, the one view dominated the public scene and the other disappeared from the public awareness as its adherents became mute. This is the process that can be called a "spiral of silence." (p. 5)

Some individuals are more willing to speak up in a public setting than others (Noelle-Neumann, 2003). Noelle-Neumann identified many indicators regarding people's willingness to share their views, although the list is not exhaustive. Certain groups are typically more willing to express their opinions publicly; including men, younger generations, and those within a higher social class (Noelle-Neumann, 2003). However, the theory is not based entirely on demographics.

Other indicators of a reluctance to speak up could be fear of isolation, public opinion, or media influences (Noelle-Neumann, 2003). Noelle-Neumann (2003) compared silence to imitation as often people who remain silent about their opinions may get on board with someone else's, even if they do not necessarily agree with what is being said. She identified the following two motives for this: learning and fear of isolation (Noelle-Neumann, 2003). Noelle-Neumann's research shows most individuals will side with a majority opinion because they are fearful of being rejected by a societal group, even when they are certain the majority is in the wrong; this

effect could lead to a conception their opinions were originally in the wrong (Noelle-Neumann, 2003). This fear of isolation depends on how others perceive public opinion. This alone should provide reason for more research involving public perception of opinion climate and willingness to speak up.

Public Opinion

Although there is no set definition of "public opinion," Hermann Oncken, a German historian, published an article in 1914 that called it "a Proteus, a being that appears simultaneously in a thousand guises, both visible and as a phantom, impotent and surprisingly efficacious, which presents itself in innumerable transformations" (as cited by Noelle-Neumann, 2003, p. 59). Oncken described the concept as so ambiguous that just when people feel they have a firm foundation built on the definition, it slips right through their fingers, time and time again (Noelle-Neumann, 2003). For the sake of research, Noelle-Neumann broke this concept into two parts.

She quoted Socrates when he said that opinion is a term often found somewhere between knowledge and ignorance (Noelle-Neumann, 2003), but opinion generally has a universal definition that is well understood. What becomes a little more complex is the meaning of the word public. Noelle-Neumann (2003) lists three standard definitions of public, but perhaps the most relevant to this study is the fact that public can be described as *social skin*, or what exposes people to the world and requires conformation to social norms. According to Noelle-Neumann (2003), "it is fear of isolation, fear of disrespect, or unpopularity; it is a need for consensus" (p. 62). Glynn (1997) describes public opinion as "an expression of the interaction between individuals' actual opinions and their perceptions of others' opinions" (p. 157).

Three key elements come together to provide an operational definition to this complex term for public opinion: (a) human ability to notice when people are in favor or against an issue,

(b) reactions following this realization, and (c) fear that people will join in popular belief that could cause an individual with a different perspective to become isolated from society (Noelle-Neumann, 2003). Under these constructs, Noelle-Neumann (2003) built the following definition of public opinion for her research: "Opinions on controversial issues that one *can* express in public without isolating oneself" (pp. 62-63).

One of Noelle-Neumann's major concerns with public opinion is the transition of the term into more of a social control perspective. She found most researchers use Spier's (1950) definition of public opinion: "Opinions on matters of concern to the nation freely and publicly expressed by men outside the government who claim a right that their opinions should influence or determine the actions, personnel, or structure of their government" (as cited by Noelle-Neumann, 2003, p. 93). Noelle-Neumann raised questions that inquired the importance of national issues over local ones and an equality issue regarding women's rights to opinion when she said, "we have here a self-conscious power of opinion established close to the government, laying claim to an equal if not a superior judgement" (Noelle-Neumann, 2003, p. 93). This is the new meaning of public opinion that is gaining force and becoming a form of social control (Noelle-Neumann, 2003). In her text, Noelle-Neumann (2003) provided specific examples of how this social control influences society, such as through fashion trends, stereotypes, and hot topic issues of our country.

Noelle-Neumann's theory revolves around the concept of public opinion. Many researchers of the spiral of silence theory consider "public opinion as a form of social control" (Priest, 2006, p. 196). Typically, when someone speaks up on a certain issue, they begin to develop a sense of perceived public opinion. Individuals who believe they may be in the minority of the opinion climate, after observing a lack of support for their opinion, begin to fall into the spiral of silence as they keep their opinions to themselves (Kennamer, 1990). Kennamer hypothesized, "Individuals will be least likely to discuss an issue when they have been exposed to

information that public opinion is opposed to their own positions and do not perceive primary group support for those positions" (p. 400).

There is literature to support and reject this hypothesis. For instance, Glynn, Hayes, and Shanahan (1997) found a positive correlation between an individual's willingness to speak up and perception of support for their opinion, but Salmon and Neuwirth (1990) found limited support for this claim. There could be many implications to these differing points of view including (a) misjudgment of public opinion, (b) locality of opinion climate, (c) media influence, and (d) Noelle-Neumann's concept of *hardcores,* "the minority that remains at the end of a spiral of silence process in defiance of the threats of isolation" (Noelle-Neumann, 2003, p. 170). These implications create a fostering environment for more research in public opinion.

Misjudgment of public opinion. Proper assessment of where one's opinion stands compared to others may have a direct relationship with the confidence of one's own opinion, which could in turn lead to a willingness to speak up (Fields & Schuman, 1996-1997; Lasorsa, 1991). These questions have been raised since Salmon and Neuwirth (1987) evaluated where people were getting their information from when formulating their own opinions. Kennamer (1990) claims, "people are not very accurate perceivers of the opinions of others" (p. 393). Whether accurate or not, people's inability to conceive a proper assessment of public opinion will not halt them from doing so anyway (Noelle-Neumann, 1974).

This could be a serious problem when studying public opinion and willingness to speak up or remain silent. Louis, Duck, and Terry (2010) agree when they said, "false beliefs about support for one's position can consolidate erroneous views as well as reducing the likelihood of attitude change, and increasing the likelihood of speaking out" (p. 657). The public's concern about public opinion must be taken into consideration when applying this concept in research. Regardless, Lin and Salwen (1997) found college students tend to effectively assess their opinion

climates, both in their hometowns and at their university. This ability to correctly assess local environments would suggest the next implication of locality.

Locality of opinion climate. People have criticized the speculations of perceiving a mass group of individuals, saying that it may have less of an impact on willingness to speak up than an individual's hometown (Salmon & Neuwirth, 1987). In a later study, Salmon and Neuwirth (1990) found "no evidence that a local opinion climate exerts a greater influence over individuals' willingness to express opinions than does a more distant (national) climate" (p. 576). However, Moy, Domke, and Stamm (2001) found in their results "it is perceptions of opinion in the 'micro-climate' or *one's immediate circle of family and friends* that are most closely linked to one's willingness to speak out" (p. 18). Granted there could be other influencers of willingness, it is important to note the research does show conflicting interests in this portion of the research.

Media influence. Many studies cite a positive relationship between media exposure and majority opinion (Glynn & McLeod, 1984; Neuwirth & Frederick, 2004; Salmon & Neuwirth, 1990). Noelle-Neumann listed three functions of the media: (a) the agenda-setting function, where the media directly tells society what to think; (b) the legitimation function, where the media allows people to perceive their own opinion as acceptable; and (c) the articulation function where the media helps followers formulate their thoughts into actual words (Noelle-Neumann, 1974). Typically, "the media acts as agents of social change by presenting one opinion as dominant or desirable and an opposing opinion as declining or undesirable" (Salmon & Neuwirth, 1987, p. 5). When individuals believe they are a part of the dominant side of the argument, they are more willing to speak up than if they were a part of the suppressed, opposing side. (Salmon & Neuwirth, 1987).

The media plays a vital part in communications to the point where they can almost craft social control. Salmon and Oshagan (1988) offered the following scenario: "Campaign planners

can control an information environment and make it appear their viewpoint or opinion dominates, [*sic*] they can create a self-perpetuating system in which their opinion actually will become dominant over time" (p. 6). When evaluating public opinion's effect on the spiral of silence, media influence must be assessed.

Hardcores. There are special cases for almost everything including willingness to speak up after observing a public opinion of a differing viewpoint. In one study, many respondents were hypothetically willing to express their opinion on certain issues, even if they were clearly in the minority of the public opinion (Salmon & Neuwirth, 1987). Lasorsa (1991) said this exception could result by a certain confidence of knowing you are right and the public is wrong. Regardless the reasoning, Noelle-Neumann (2003) defined these people as hardcores, "the minority that remains at the end of a spiral of silence process in defiance of the threats of isolation" (p. 170). This could be a limitation to many studies, regarding outliers in data collection.

Choosing Agricultural Topics

Most spiral of silence research has focused primarily on broad issues with relevance to a large population but has not looked at specific concerns across different opinion climates. (Neuwirth & Frederick, 2004). Other considerations such as testing the theory "in multiple issue contexts simultaneously" (Gearhart & Zhang, 2015, pp. 1-2) and utilizing issues with strong emotional components dealing with morality concerns on highly controversial topics (Noelle-Neumann, 1989) are other things to consider when selecting methodology for a research project dealing with the spiral of silence theory.

Yeric and Todd (1996) address three categories of issues that are of public interest: (a) *enduring* issues, (b) *emerging* issues, and (c) *transitory* issues. "Issues that remain in the public eye over a number of years. . . are called enduring issues" (Yeric & Todd, 1996, p. 165). To become enduring, an issue must first become an emerging issue, which are relatively new to the

general public (Yeric & Todd, 1996). The last category of public interest issues is transitory. These types of issues are not prevalent for a long period of time, but they do have an act for coming in and out of the spotlight quite frequently (Yeric & Todd, 1996).

Organic Agriculture. When performing research on consumer perceptions comparing organically grown and conventionally produced foods, there is an attempt to discover levels of knowledge and what people believe about each practice (Yiridoe, Bonti-Ankomah, & Martin, 2005). Yiridoe et al. (2005) concluded the general population perceives conventional practices "tend to have long-term health implications and adverse effects on the environment" (p. 198), whereas "consumers purchase organic foods because of a perception that such products are safer, healthier [*sic*] and more environmentally friendly" (p. 198). Many studies suggest consumers in the U.S. were willing to pay a 37% premium for organic products, but as the premium increases, willingness to pay decreases (Yiridoe et al., 2005).

Food Labeling Regulations. Much research has focused on consumers' preference for labeling programs, be it mandatory or voluntary, but these studies have typically focused on a regional scope or willingness-to-pay rather than examining consumer preferences (Loureiro & Umberger, 2007). McCluskey and Loureiro (2003) conclude an increase in demand for products that are "high quality, health, and social-responsibility concerns" (p. 101) will optimize marketing tactics through advanced techniques. It can be concluded federal labeling regulations could influence consumer choice to some degree. For instance, according to Roe and Teisl (2006), "consumers perceive that products with No-GM [genetically modified] content will cause fewer long term health problems than products that explicitly claim GM content, but this difference is only statistically significant when claims are certified by the USDA" (p. 59).

Antibiotic Usage in Livestock Production. Society has set forth an expectation that foods to be consumed by the human population must be safe and nutritious, however the level of

uncertainty among consumers has risen in years past (Werbeke, Frewer, Scholderer, & De Brabander, 2006). Risk management staff are learning how public perceptions of risks and benefits must be carefully considered in order to implement a new technology or product (Verbeke, et al., 2006). According to Raymond, Wohrle, and Call (2006) little information has been presented to the public describing specific techniques and practices of antibiotic usage in livestock, even with the extensive use of these antimicrobials in the industry. "Be it hormone or veterinary drug residues, chemical environmental contaminants or microbial pathogens, their real or perceived presence in food results in increased risk perception and other consumer public policy concerns" (Verbeke et al., 2006, pp. 2-3).

Overall, Verbeke et al. (2006) concluded an overestimation of risk to the probability of harm and although people are able to distinguish different risks as a whole, they do not differentiate the different risks within one single food group. "Perceptions of technological risks are shaped by beliefs that the risks are out of control are unnatural . . . somehow adding to the already existing risk environment, which all contribute to explaining their [the consumer] greater perceived harmful – and seriousness" (Verbeke et al., 2006, p. 5).

Methods

Participants

The population for this research project was AECL undergraduate students at OSU. The department consists of 370 undergraduate students hailing from 28 states ("Enrollment Data," 2017). Of the students in the department, 259 are female (70%) and 111 are male (30%). According to the department enrollment data, the ethnicity of the students studying within the department is predominately White/Caucasian (80.5%). Other ethnicities represented in the department include American Indian (6.5%), Hispanic (3%), Black/African American (1.1%),

Asian (.3%), and Nonresident Alien (.3%) with 8.4% self-reported as multiracial ("Enrollment Data," 2017).

The student population in the department includes students with primary and secondary majors in agricultural education, communications, and leadership, including 143 (38.6%) students with a primary major in agricultural communications; 110 students (29.7%) with agricultural education; and 48 students (13%) with a primary major in agricultural leadership. However, when including secondary majors, there are a total of 189 agricultural communications majors, 128 agricultural education majors, and 48 agricultural leadership majors. The junior class is the largest with 100 students (27%), followed by the senior class with a total of 95 students (25.7%), the sophomore class has 91 students (24.6%), and the freshman class is the smallest class comprised of 84 students (22.7%). All students studying agricultural education, communications, or leadership as primary or secondary major were invited to participate in this research.

Of this population of 370 students, 59 responded for a 15.9% response rate. Although this response rate is not ideal, it is expected as the average response rate for e-mail surveys has experienced a decreasing trend, even though the method of disbursal itself has been increasing (Shehan, 2001). In fact, Bikart and Schmittlein (1999) have found "response rates are declining for all types and manner of surveys" (as cited in Shehan, 2001). There could be many reasons as to why people do not respond to surveys in general, but perhaps the most occurring in the research is *survey overload*, also known as *over-surveying* (Baruch & Holtom, 2008; Shehan, 2001). Baruch and Holtom (2008) conclude the result of over-surveying involves "a large number of target individuals or firms who are fatigued and therefore refuse to respond to non-essential questionnaires" (p. 1142).

There are disadvantages of low response rates because higher response rates lead to a higher level of credibility and representation of the focused population (Baruch & Holtom, 2008;

Dillman, Smyth, & Christian, 2014) and the results of respondents and nonrespondents could vary leading to a nonresponse error (Dillman et al., 2014; Shehan, 2001); however, nonresponse bias can also happen in surveys with a high response rate as well (Dillman et al., 2014). In fact, Dillman et al. (2014) wrote, "the common mistake sometimes made by novice surveyors is to consider response rate as an adequate indicator of whether nonresponse error exists" (p. 6). Although any tier nonresponse could lead to bias, it does not mean that bias necessarily exists (Baruch & Holtom, 2008) because Dillman et al. (2014) wrote response rate is:

> An indirect indicator . . . The more important response quality indicator is nonresponse error, which occurs when the characteristics of respondents differ from those who choose not to respond in a way that is relevant to the study results. (p. 5)

Baruch and Holtom (2008) note it is more important the respondents properly represent the population of the study, making sure there is not a systematic difference between the respondents and the overall population. With this in mind, it was vital to compare the respondents to the entire population as far as demographics were concerned. The sample of respondents for this research was comparable to the AECL total student population in terms of gender, race, and area of study, with some variance in classification.

When considering respondents' reported sex, 79.4% were female, as compared with 70% of the AECL student population. Race of the sample included: White, 88.2%; Native American/American Indian, 5.9%; and Hispanic, 2.9%. This was compared to the diversity in the population of White, 80.5%; Native American/American Indian, 6.5%; and Hispanic, 3%. The area of study of the sample was divided up with 29.4% listing their major concentrated in communications, 23.5% in education, and 14.7% in leadership with 32.4% listing as a double major; this was compared to the overall population divided as primary majors being communications, 38.6%; education, 29.7%; and leadership, 13%. For the most part comparisons

were similar, but the classification of students had more variability. The sample of respondents included freshmen, 8.8%; sophomores, 17.6%; juniors, 23.5%; and the senior class, 38.2%; whereas the population is divided as freshmen, 22.7%; sophomores, 24.6%; juniors, 27%; and seniors, 25.7%. Basically, more seniors were willing to respond whereas; the freshman class was not well represented.

There is a tendency for low response rates to be problematic in research, however it is good to publish these results because "researchers are not always interested in generalizing results to a population" (Privitera, 2017, p. 251). Blair and Zinkhan (2006) provide some explanation to this proposition:

> To establish some eternal validity, researchers often use survey results to instead generalize to a theory, called theoretical generalization, or generalize to other observations, called empirical generalization . . . As long as survey results are rooted in existing theories and data, researchers can afford to be lenient [to some extent] about sample quality in academic research (Privitera, 2017, p. 251).

Because this study sought to provide support for Noelle-Neumann's theory and although the response rate was low, there could still be relevant results for future research.

Data Collection

Contact. Wang and Doong (2007) found significant advantages to collecting data through email surveys including "a fast response speed, lower cost, improved accuracy in encoding data, flexibility to fit the necessary conditions of particular research studies" (p. 3) and greater access to a wider audience; in this study, the e-mail method allowed the researchers to reach out to every individual in the population versus a select sample.

Therefore, AECL students were invited via email to participate in the study through the email list for OSU's AECL department. Upon clicking the anonymous link embedded in the email, participants were redirected to the survey designed using Qualtrics Software. Participants were informed the survey would take approximately 15-20 minutes to complete. Students were also informed that by choosing to participate in the survey, they consent to their responses, which were treated confidentially, being used for research in the field of agricultural education, communications, and leadership. Following the initial email, two reminders were sent in one-week intervals.

A limitation of the study lies with the initial contact of the department. The original survey was distributed to 608 individual email addresses in the AECL department, including faculty and duplicate students. This was because the email lists for the department are divided into the three areas of study: education, communications, and leadership. Therefore, the email lists included students with those majors and the faculty who teach in those areas. The first email was sent to a combined list of emails for each of the three areas of study in the department. However, upon realization of this incident, the reminder emails were sent to a list in which duplicate students were removed. The assumption was made that faculty would notice the directions of the email asking for student participation and not participate themselves. Also, since the questionnaire was fairly long in terms of length, an assumption was made that students would only participate in responding to the instrument once. However, it is possible some survey responses were duplicated.

The instrument. The instrument for this study was adapted from Hayes, Shanahan, and Glynn's (2001) study to assess student willingness to express opinions in a realistic situation. They chose highly controversial topics that were then prevalent in the media for students to consider the degree they thought others believed what they believed (Hayes et al., 2001). Students were then asked to rank the agricultural issues in the order they would be willing to discuss them

(Hayes et al., 2001). “We reasoned that people would tend to rank relatively low those topics that they would prefer not to discuss and rank high those topics that they would be willing to discuss” (Hayes et al., 2001, p. 51). Although the Hayes et al. (2001) instrument was not able to be retrieved, a portion of the study was replicated and modified for part of the instrument used in this study. Other components were crafted to give an insight to other possible predictors of the spiral of silence.

Gearhart and Zhang (2015) wrote that it is crucial to test the spiral of silence through multiple issue contexts, therefore, it would only be beneficial to select issues that could fit into each of the three categories put forth by Yeric and Todd (1996). The instrument for this study asked participants to consider how they formulated their opinions and beliefs on three agricultural issues: (a) organic agriculture, (b) food labeling regulations, and (c) antibiotic use in livestock. Each of the following agricultural issues were selected using the suggestions of Yeric and Todd (1996).

Organic agriculture has seen a 20% increase per year since 1994 (Kuepper, 2010). Although this sector began early in the twentieth century, the beliefs about organic agriculture leading the arguments for debate, organic foods are healthier and assertion they induce pest and disease resistance, continue to drive today’s market (Kuepper, 2010). The prevalence of organic agriculture over time gave validity to its selection as an enduring issue.

Food labeling can be traced back to 1906 when the Food and Drug Administration (FDA) was authorized to provide labeling information regarding the amount of food, its ingredients, and the common name (Nielson, 2017). A movement began in 1973 to label food in regard to its nutritional value, and nutrition labeling standards were again evaluated in 1990 with the Nutrition Labeling and Education Act (Nielson, 2017). Recently, in 2016, the regulations were amended to help consumers make healthy decisions (Nielson, 2017). Because of the cycle this issue follows

by emerging and disappearing from public discussion, food-labeling regulations was placed in the transitory category.

Although antibiotic use has been used in livestock for some time now, it plays a large role in antibiotic resistance, an emerging health crisis as seen by the public (Landers, Cohen, Wittum, & Larson, 2012). Landers et al. (2012) wrote, "Although the majority of antibiotic use occurs in agricultural settings, relatively little attention has been paid to how antibiotic use in farm animal contributes to the overall problem of antibiotic resistance" (p. 4). Because health risks to humans and the benefits to production animals have not been researched in depth, "it is evident that at present, the resources devoted to studying the role of antibiotic use in food animals . . . are insufficient" (Landers et al., 2012, p. 21). This recent activity and gap in the literature provide validity for antibiotic use in livestock to be an emerging issue.

Along with Gearhart and Zhang's (2015) suggestion to test the theory in multiple issue contexts, Noelle-Neumann (1989) proposed to use issues with strong emotional components dealing with morality concerns on highly controversial topics. Oulton, Dillon, and Grace (2007) defined controversial be having a significant amount of individuals argue on a given topic without reaching an agreement. These arguments might surface because of a scientific endeavor to resolve a given social, economic, or political problem to reach consensus (Oulton et al., 2007). All three agricultural issues selected for this study can be considered controversial, shown by the following research.

Since its emergence, organic agriculture has been more of a radical social movement to form a resistance in a world of conventional practices (Vos, 2000). In fact, Vos (2000) wrote, "it is problematic to refer to the movement as if it were one homogenous entity, with a more or less unified position" (p. 251). Regarding food labeling regulations, Klintman (2002) examined what was claimed to be "one of the most intensely disputed controversies in the public debate over

genetically modified (GM) food" (p. 71); this controversy was how these types of foods should be labeled. Graham, Boland, & Silbergeld (2007) found controversy with antibiotic use in livestock. With arguments including their increased antibiotic-resistance in humans, their effect on production costs, and much more, antibiotics used in livestock for human consumption hold much controversy as well (Graham et al., 2007).

Although participants were asked to consider their opinions on the three controversial topics in agriculture when responding, the instrument did not ask participants to share their actual thoughts on these topics. The instrument also asked participants what channels they use to receive their news and identify the current, public perception of agricultural topics, or if knowing the public opinion of certain groups was important or not.

Measures. To evaluate the importance of student perception of the current opinion climate, the instrument also asked participants how important it was to them to find out what the following groups are thinking about controversial agricultural issues/topics in general: (a) my close family/friends, (b) other students with my major, (c) other students in my agriculture classes, (d) other students on campus, and (e) other people in my community or state. The five-point Likert-type scale ranged from 1 (*important*) to 5 (*unimportant*).

The instrument asked participants where they believed their opinion(s) regarding each agricultural issue fell in line with the opinion(s) of the following groups: (a) the general U.S. population, (b) those involved in agriculture across the U.S., (c) students of OSU, (d) students enrolled in CASNR (College of Agricultural Sciences and Natural Resources) at OSU, and (e) students studying agricultural communications at OSU. A question asking about students studying agricultural communications at OSU was not analyzed after a decision of the graduate committee to send the survey to the entire OSU Department of Agricultural Education, Communications, and Leadership, instead of primarily agricultural communications majors. The

four-point Likert-type scale was represented with a 1 (*definitely minority*), 2 (*uncertain, but probably minority*), 3 (*uncertain, but probably majority*), and 4 (*definitely majority*).

The final portion of the instrument was used to determine the demographics of the respondents. Demographics included sex (male, female), ethnicity/race (White, Hispanic/Latino, Black/African American, Native American/American Indian, Asian/Pacific Islander, other), age, classification in school (freshman, sophomore, junior, senior, graduate, other), major (agricultural communications, agricultural education, agricultural leadership, double major), and home residency (rural: farm; rural: non-farm; suburban; urban). Participants were also asked to select agricultural experiences from a list that apply to them.

Validity and Reliability

The original instrument, adapted from Hayes et al. (2001), used the original researcher's technique in asking students to think about the degree their opinions aligned with those in the public. However, instead of asking students to rank agricultural issues in the order they would be willing to discuss, students were inquired about their opinions on each issue to gain insight to the other predictors observed in the study. The panel of experts gave suggestions and approved these modifications to the original instrument of Hayes et al. (2001) as well as discussed the list of potential agricultural issues and their research to identify the three used for this study.

In considering possible limitations for this study, a couple thoughts arise from the literature. When assessing public opinion Salmon and Kline (1983) have noticed, though Noelle-Neumann argues perception of opinion climate determines willingness to speak up, most of her data has consistently analyzed actual congruence of public opinion. This could be an important step in laying out future research methodology for both spiral of silence research and public opinion research. However, Kennamer's (1990) work should also be kept in mind that people

generally are not great at perceiving public opinion. Therefore, the focus of this study was to determine participants' perception of public opinion and not their actual opinion congruence.

One must also remember there are special cases to people speaking out. Louis, Duck, and Terry (2010) suggest, "people may feel a need to speak out when they perceived that their views are losing ground, providing evidence for active resistance rather than a spiral of silence on the part of the losing side" (p. 670). This initiation to speak up could fall in line with Noelle-Neumann's concept of hard cores, who Baldassare and Katz (1996) noted to be "immune to the fear of isolation" (p. 153). It is important to note, in spiral of silence research, these outliers are expected.

Findings

Findings Related to Objective 1: Importance of Public Opinion

For the importance of public opinion, the five point Likert-type scale ranged from *important* (1) to *unimportant* (4). In this research, 94.3% of respondents indicated it was *important* or *slightly important* they knew where their close friends and family stood regarding agricultural issues; 97.1% for other students with their major; 91.4% for other students in their agriculture classes; 80% for other people in their community or state; and 65.7% for other students on campus.

Findings Related to Objective 2: Perceived Public Opinion

Although participants were not asked to share their opinions on the three agricultural issues, participants were asked where they believed their opinion fell in line with the opinions of four groups: (a) the general U.S. population, (b) those involved in the agriculture industry across the U.S., (c) students at OSU, and (d) students enrolled in CASNR at OSU. To consider the issue of *uncertainty* within the public opinion climate, the instrument allowed participants to select

definitely majority, uncertain (but probably majority), uncertain (but probably minority), and *definitely* minority.

Participant perceptions about how their beliefs regarding organic agriculture align with the climate of public opinion is listed, by percentage, in Table 3.1.

Table 3.1
Participant's Perceived Alignment of Public Opinion Regarding Organic Agriculture

	Definitely Majority	Uncertain, but Probably Majority	Uncertain, but Probably Minority	Definitely Minority
General U.S. population.	6.7%	8.9%	62.2%	22.2%
Those involved in agriculture across the U.S.	60.0%	22.2%	13.3%	4.4%
Students at Oklahoma State University.	6.8%	34.1%	50.0%	9.1%
Students enrolled in CASNR.	60.0%	26.7%	11.1%	2.2%

Note. Percentages are representative of the percent of participants.

A majority of participants in the study were uncertain about where their opinion(s) about organic agriculture fell compared to the general U.S. population but believed it to probably be in the minority (62.2%). Half (50%) of the participants felt the same way when comparing their opinions to other students at OSU. Sixty percent of respondents indicated their opinions were definitely in the majority of the agricultural community in both the U.S. and students enrolled in CASNR.

Participant perceptions about how their beliefs food labeling regulations align with the climate of public opinion is listed, by percentage, in Table 3.2.

Table 3.2
Participant's Perceived Alignment of Public Opinion Regarding Food Labeling Regulations

	Definitely Majority	Uncertain, but Probably Majority	Uncertain, but Probably Minority	Definitely Minority
General U.S. population.	8.3%	22.2%	55.6%	13.9%
Those involved in agriculture across the U.S.	30.6%	58.3%	8.3%	2.8%
Students at Oklahoma State University.	16.2%	45.9%	37.8%	0.0%
Students enrolled in CASNR.	40.5%	48.6%	8.1%	2.7%

Note. Percentages are representative of the percent of participants.

This issue portrayed the most amount of uncertainty when it comes to public opinion perception. When comparing their opinions to the general U.S. population, 55.6% of participants reported they were uncertain of how their beliefs aligned, but believed they were probably in the minority. The majority of participants (58.3%) reported they were uncertain, but their beliefs probably aligned with the majority of those involved in agriculture across the U.S. Although, 30.6% of participants reported they believe their opinions definitely aligned with the majority. Uncertainty was more evenly distributed regarding the opinions of students at OSU with 37.8% uncertain (but probably minority) and 45.9% uncertain (but probably majority). However, regarding students enrolled in CASNR there were more respondents in the definite majority (40.5%), but the most popular answer was still uncertain (but probably majority) with 48.6%.

Participant perceptions about how their beliefs about antibiotic use in livestock align with the climate of public opinion is listed, by percentage, in Table 3.3.

Table 3.3
Participant's Perceived Alignment of Public Opinion Regarding Antibiotic Use in Livestock

	Definitely Majority	Uncertain, but Probably Majority	Uncertain, but Probably Minority	Definitely Minority
General U.S. population.	5.9%	0.0%	50.0%	44.1%
Those involved in agriculture across the U.S.	61.8%	23.5%	11.8%	2.9%
Students at Oklahoma State University.	8.8%	38.2%	35.3%	17.6%
Students enrolled in CASNR.	61.8%	32.4%	5.9%	0.0%

Note. Percentages are representative of the percent of participants.

Most participants reported they believe their opinions about antibiotic use in livestock aligns with the minority when compared to the general U.S. population. Fifty percent of participants reported they are uncertain, but their opinion probably aligns with the minority, and 44.1% who believe their opinion is definitely in the minority. When comparing themselves to other students at the university, 73.5% of participants were uncertain and seemed to be fairly split down the middle whether they leaned toward the majority (38.2%) or minority (35.3%). However, in considering agriculture both across the U.S. and at students enrolled in CASNR at OSU, 61.8% of participants believed themselves to be definitely in the majority.

Conclusions

OSU AECL students indicated it is important to know the opinions of others regarding controversial agricultural topics, however, students are not necessarily concerned with knowing the opinions of other students on campus. Yet, when it comes to students in their agricultural classes, knowing the opinion climate seems to be more important. It is interesting to note students

are not as concerned with the overall student population, but they seem to show a need to know where the general population of their community and state stand regarding agricultural topics.

It is interesting to note students felt their opinions align more with those involved in agriculture, be it the general population in the industry or students studying the science. For example, when considering antibiotic use in livestock, participants seemed confident in reporting their opinions definitely aligned with the minority. This phenomenon could relate to the spiral of silence as students reported they believe they share the dominate opinion among other students studying agriculture and natural resources as indicated in this study; however, among other groups, students reported they believe their opinions dissipate from public awareness, which could explain the uncertainty or indication they believe their opinions align with the minority.

As students studying agriculture, it was not surprising to find they experienced some uncertainty of their opinions in regard to the OSU student body as a whole, but it was very much evident. In regard to federal food labeling, AECL students indicated their opinions to be slightly more in the majority versus slightly in the minority as related to organic agriculture; uncertainty was split between the minority and the majority regarding antibiotic use in livestock. This could relate to Moy et al.'s (2001) findings that it is "the 'micro-climate' or *one's immediate circle of family and friends* that are most closely linked to one's willingness to speak out" (p. 18). Since students are more certain of where they indicate their opinions align with other students studying agriculture and natural resources, students could be more comfortable to discuss their opinions with this social group compared to the extended campus-wide community. The AECL students close circle could be represented by Agricultural Hall, the building that houses CASNR at OSU.

Discussion and Recommendations

If those involved in agriculture, students or not, remain silent about their views on agricultural topics in settings with those not involved in the industry, people could become more

removed from the farm than they already are. If students are not properly prepared to speak up for the industry and are more so taken over by a fear of isolation, the silence could lead to less diversity of opinion within the agricultural and natural resources industries.

With many different sectors in the agricultural and natural resources industry, it would be hard to think everyone would have the same idea or recommended practice. Students should realize there is not one distinct opinion held by those within an industry. This could be remedied in the classroom by teaching students about the diversity and differing viewpoints within the industry. It is possible student perceptions of the industry, or the general public, could be a misjudgment of actual public opinion congruence. As Kennamer (1990) wrote, "People are not very accurate perceivers of the opinions of others." Further research should consider the actual perception of the public to determine if there are unnecessary suppressions of students feeling in the minority, which could lead to submission to the spiral of silence.

By observing behaviors pertaining to the spiral of silence in relation to actual public congruence, academics can better prepare the younger generation to be more outspoken to continue the give and take relationship of communication. Glynn, Hayes, and Shanahan (1997) have concluded "future research on the spiral of silence should concentrate on observations of actual willingness to speak out as opposed to hypothetical willingness" (p. 461) because much of the research concerning the spiral of silence asks participants to imagine they are in a certain setting by painting a picture of the perfect scenario. By observing actual discussions, observing political debate forum, and other forms of public interaction, researchers will be better able to understand what actual responses people will have when deciding to speak up or remain silent.

CHAPTER IV

OBSERVING POTENTIAL PREDICTORS TO THE SPIRAL OF SILENCE REGARDING STUDENT WILLINGNESS TO DISCUSS TOPICS IN AGRICULTURE

Baldassare and Katz (1996) list many real-life scenarios in which individuals are faced with a decision to publicly express their thoughts and opinions, including political polls, small-talk conversations, and social gatherings. Allen and Price (1990) claim "public communications involves an exchange of information, a five-and-take of contending approaches" (p. 388). This would mean society needs people to speak up about various viewpoints to continue public communication. *Speaking up* has been defined as "openly stating one's views or opinions about workplace issue" (Premeaux & Bedeian, 2003, p. 1,538), but silence happens more than just in the workplace.

Fassinger (1995) wrote about the importance of facilitating participation in classroom discussions lies within the cultivation of intellectual development and critical thinking skills. With only 25% of students actively participate in classroom discussion, in which case half of those students have the tendency to dominate the dialogue (Karp & Yoels, 1976), students will not improve their "practice in thinking through problems and organizing concepts, formulating arguments and counter arguments, testing their ideas in a public setting, evaluating the evidence for their own and others' positions, and responding thoughtfully and critically to diverse points of

view" (p. 63). Student comfort can be enhanced by increasing the involvement of less vocal students in classroom discussion (Dallimore, Hertenstein, & Platt, 2009).

Silence can also occur in the workplace. Oftentimes, employees will slide into a submission of silence, even if they have thoughts or opinions that would be beneficial to the company or organization for which they work (Bowen & Blackmon, 2003). This has also been observed by Tyan and Oestreich (1998) who found many employees view workplace discussions to be risky and their participation is often self-perceived as precarious. There seems to be a paradox where employees do not speak up about issues to their superiors, even when they know the exact truth about certain happenings or problems within their company (Morrison & Milliken, 2000). Morrison and Milliken (2000) continue to note employees would rather stay silent because they fear uncertainty and other negative repercussions of speaking up.

Although the dynamics of the theory had been previously observed, Noelle-Neumann (2003) first proposed her spiral of silence theory in 1974 to refer to people's tendencies to evaluate their perception of the public opinion and decide whether to speak up or remain silent to avoid any type of social isolation, the main cause of submission into the spiral suggested by the theoretical framework. It is possible there are other identifiers to the spiral of silence. These identifiers, or *potential predictors* as referred to in this study, could be different for each industry, business, or person. A need has been set forth to add to the spiral of silence research by using multiple techniques, through different scenarios, and in specific industries (Kennamer, 1990).

Purpose and Objectives

This study takes heed to Kennamer's (1990) recommendation by seeking out to add to the spiral of silence research by focusing on the agricultural industry. The purpose of this manuscript was to observe potential predictors impending the agricultural education, communications, and

leadership student's willingness to speak up regarding controversial topics in agriculture. This study was guided by the four following research objectives:

1. Determine the AECL students' willingness to discuss controversial, agricultural issues in multiple environments;
2. Describe the relationship between students' cognizance of agricultural issues and their willingness to speak up about these issues;
3. Describe the relationship between students' perceived self-efficacy and their willingness to speak up; and
4. Describe the relationship between the demographic characteristics and student willingness to speak up.

Literature Review

Theoretical Framework

Elisabeth Noelle-Neumann first proposed the spiral of silence theory in 1974 to showcase how observations in one context could spread to another while encouraging people to speak up about their opinions or resort to silence until one view took dominance in the public to become the public opinion (Noelle-Neumann, 2003). While this opinion took dominance of the public opinion, the other slowly "disappeared from the public awareness as its adherents became mute. This process that can be called a *spiral of silence*" (Noelle-Neumann, 2003, p. 5). Because some individuals exhibit a higher willingness to speak out than others, Noelle-Neumann (2003) identified several indicators regarding this confidence. The main assumption of her theory is a fear of being socially isolated from society because of having an opinion or perspective different from the majority perception (Noelle-Neumann, 2003).

Contrary to this assumption, some researchers would agree silence on controversial issues is not created by a fear of social isolation. Many researchers have identified possible predictors to

a submission to the spiral of silence. Salmon and Neuwirth (1987) and Salmon and Rucinski (1988), identified that social characteristics, demographics, issue salience, perception of majority opinion, and knowledge on the issue could be significant determinants when observing willingness to speak up about controversial topics. There are many potential causes of a submission to the spiral of silence. For the purposes of this study, the following five prevalent, possible predictors from current spiral of silence research will be observed: (a) environment, (c) cognizance, (c) self-efficacy, and (d) demographics.

Predictors to the Spiral of Silence

Environment. The situation a person finds themselves in when they are deciding to share their opinion with others could be a great influential on a submission to the spiral of silence. Salmon and Neuwirth (1987) considered "that speaking to a TV reporter may evoke feelings of discomfort among older or less educated persons who may not feel as comfortable with technology, in general, as their younger or better educated counterparts" (p. 13). Perhaps, because of the lack of exposure to technology, the elderly do not have a working knowledge of issues portrayed on social media that youth do. However, would the elderly feel comfortable if talking to a high school or college class focusing on the same subject the TV reporter was covering?

When it comes to a classroom environment, class and student traits seem to be decent predictors of student participation in classroom discussion (Fassinger, 1995). Weaver and Qi (2005) pondered whether class size would heighten student fears pertaining to class participation. They express that "large classes permit greater anonymity, enable students to seat themselves at the periphery of the classroom, and thereby facilitate the strategic withdrawal of the majority" (pp. 572-573). Although this might not be a start into the spiral, this would give students with existing fears a vice to spiral further into their silence.

Other factors, such as gender of the professor or instructor, could influence student development in the classroom. Fassinger (1995) found slight-to-no significance when it came to males' self-perception of educational development. However, females were significantly involved when they took classes taught by female instructors. "Females were significantly more confident, comprehended more, were more interested in the subject matter, and participated more in classes when their professors were female" (Fassinger, 1995, pp. 88-89). Granted, one cannot fill every classroom with female instructors, but it should be noted that those involved in the environment may have a certain significance when it comes to student willingness to speak up. Weaver and Qi (2005) observed student reports on ten causal variables when it came to classroom participation; they found that "*faculty-student interaction* seems to have the largest direct, indirect, and total effects on participation" (p. 591).

Knoll and van Dick (2013) understood from their research that employees are often silenced because "a climate where conformity is promoted and dissent is suppressed demotivates employees to participate" (pp. 350-351). This conformity leads to employees with beliefs that their opinion is undervalued or even unwanted by supervisors and other management (Morrison & Milliken, 2000). These same emotions are most likely felt by students in today's classroom. Fassinger's (1995) data recommended "that developing student confidence could be an instructor's first step in promoting class participation. . . starting a semester with discussion and exercises that encourage students to help strengthen their peers' confidence" (p. 93). By creating a comfortable learning environment, educators can only cater to students' needs. Fassinger (1995) even said professors' interpersonal style does not directly influence student participation in class, but "when professors create class activities that foster positive emotional climates, they are likely to help cultivate interaction" (p. 93). Fassigner's (1995) analysis suggested creating a comfortable learning environment will only increase the willingness of students to speak up in class.

Cognizance. When observing whether someone is willing to speak up or remain silent on a controversial topic in any industry, as suggested in current research, it could be important to understand the level of knowledge an individual has on the topic, how much they have noticed the topic, and whether it is of interest to that person. Many researchers found issue salience to be a consistent predictor when evaluating a person's willingness to speak out publicly on controversial issues (Lin & Salwen 1997; Noelle-Neumann, 1991; Salmon & Kline, 1983).

In considering the impact of the spiral of silence in politics, Baldassare and Katz (1996) found "those who say they definitely intend to vote are more willing to speak out" (p. 152). Those who followed political races and views were more willing to speak out in four different surveys and found interest to be a significant predictor (Baldassare & Katz, 1996). Lasorsa (1991) also found paying attention to news media involving politics affected outspokenness pertaining to those topics. Granted, it could vary issue to issue, much research shows those who are interested in a topic will be more willing to speak out on that topic.

Lasorsa (1991) suggested "one might argue that people who use the news media and especially those who pay close attention to political news would be better able to gauge the climate of opinion" (p. 135), which would then lead to perception of public opinion. This claim is backed by the statement, "empirical evidence generated by spiral of silence researchers shows that media exposure is significantly related to majority opinion estimates" (Neuwirth & Frederick, 2004, p. 676). If one is interested in a topic, they then observe public knowledge to perceive the majority opinion; the public opinion and cognizance predictors basically go hand in hand. Priest (2006) noticed a similar correlation:

> Opinion researchers generally recognized that news media content is implicated in the formation of an opinion climate by virtue of its role in making some voices and

> viewpoints appear more visible, and therefore, more legitimate, more common, and more acceptable than others. (p. 197)

Priest (2006) also noticed a certain confidence that gave individuals who felt they understood their area of study, which gave them "social power of scientific rhetoric in United States culture" (p. 211) when arguing with scientific knowledge in their back pocket. Salmon and Neuwirth (1990) found "there is clear evidence that knowledge and personal concern regarding an issue does play an important role in willingness to communicate about the issue" (p. 576) at hand. Therefore, it is vital to observe these qualities in individuals to assess their willingness to speak up about controversial topics.

Self-efficacy. Regardless of the setting and the climate of perceived public opinion, people who perceive themselves to be self-efficacious are more willing to discuss their opinions publically (Lasorsa, 1991). This is not necessarily related to certainty of the perceived opinion climate but might relate to a specific type of confidence (Lasorsa, 1991). Self-esteem has been shown to have a positive influence on individuals' willingness to speak out; individuals with low self-esteem tend to fall into a spiral of silence "to avoid self-presentational risks associated with speaking up" (Premeaux & Bedeian, 2003, p. 1543). Lasorsa (1991) provided a detailed explanation of what self-efficacy is:

> It may be related to confidence in one's ability to change things beyond oneself, or *self-efficacy*. As used here, self-efficacy refers to the general perception that one has the potential for affecting change in the greater environment. Self-efficacy is similar to what Sigel and Hoskin (1981) call "feelings of personal competence," an umbrella concept under which they subsume such other related ones as "locus of control" (Rotter, 1966), and "self-esteem" (Rosenberg, 1965). (p. 134)

Self-efficacy essentially deals with how individuals perceive themselves and in turn seems to correlate directly with self-concept (Falanaga, De Caroli, & Sagone, 2014). "The self-concept concerns the image that every person builds of him/herself and could be defined as the sum of beliefs and feelings that individuals have about themselves" (Falanga et al., 2014, p 296).

People saying things to make themselves liked by others, changing what they say judging on the climate of opinion, and engaging in silence could all be negative influences to a person's willingness to speak up caused by their own personal anxieties (Willnat, Waipeng, & Detenber, 2002). These anxieties could lead to an overall fear of isolation stemming from a lack of Bandura's (1994) main sources of influence: "mastery experiences, seeing people similar to oneself manage task demands successfully, social persuasion that one has the capabilities to succeed in given activities, and inferences from somatic and emotional states indicative of personal strengths and vulnerabilities" (Bandura, 1994, p. 15). Fear of isolation has been studied by psychologists and defined as a "fear or anxiety in situations where a person experiences loneliness or lack of community" (Kim, 2012, p. 308). Kim (2012) found that fear of isolation had a significant relationship with a person's willingness to join discussion and interaction with a present majority. "Those who have a greater fear of isolation in general should be less willing to express opinions in public" (Kim, 2012, p. 309).

When considering groups, it is important to assess the energy of those involved by looking at attitude strength, another significant predictor of willingness to speak up and "powerful motivator for breaking the spiral of silence" (Baldassare & Katz, 1996, p. 153). If one can develop a strong attitude and relationship among those they will be discussing with it could allow individuals to speak more freely about controversial topics. Bandura (1997) claimed, "self-efficacy affects choices and efforts employed to achieve a goal; it can be improved by means of specific social experiences and learning processes" (as cited in Falanga et al., 2014, p. 296). Thus,

one should foster students' learning environment by including these experiences to help learning development. However, in most situations, that is much easier said than done.

Demographics. Noelle-Neumann (1974) has found evidence that demographic characteristics, such as education level, urban vs. rural communities, family income, and age, can be significant identifiers when assessing those who are likely to speak out. Her findings show "that males, the youthful, the better educated, and those belonging to the higher social strata generally tend to speak out more politically" (Lasorsa, 1991, p. 135). Glynn and McLeod (1985) stated it is important to control such demographic variables to properly test public opinion; this could be a limitation to most public opinion research.

Salmon and Oshagan (1988) found the smaller the community the less likely someone is to speak up on what is perceived to be an unpopular opinion; they said "larger communities, by their nature, are characterized by greater diversity of points of view" (p. 18). Evidence can be seen those from smaller communities might feel a greater level of discomfort when expressing their opinions against the majority opinion (Salmon & Oshagan, 1988). Thus, with many agricultural students coming from rural communities, it would seem vital to understand where those students come from and their experiences when gauging their willingness to speak out about agricultural issues.

Gender has also been studied as a significant indicator of silence. When evaluating participation in the classroom by different genders, Fassinger (1995) found male students to be more confident and involved, whereas, the female students were "more prepared for class, more interested in the subject matter, and more interested in peers' comments and questions" (p. 88). Both genders have identifiers that would allow them to willingly participate in classroom discussion, but they also have different reasons for remaining silent. "Women are significantly more likely to say their silence is due to poorly formulated ideas, ignorance about a subject, and

fear of appearing unintelligent to peers" (Fassinger, 1995, p. 88). Young men on the other hand felt unprepared for classroom activities and feared, not necessarily social isolation, but a fear of receiving a bad grade (Fassinger, 1995).

For the purposes of this study, the relationship between willingness to speak up and demographic characteristics, such as gender, whether students were raised in a rural or urban area, classification in school, and their involvement in the agricultural industry and on campus organizations, were evaluated. This is not a complete list of possible demographics, but will give an insight to some key predictors already listed in the current research.

Selection of Agricultural Topics

It has been noted in previous spiral of silence research, there is a need to observe concerns across different opinion climates (Neuwirth & Frederick, 2004) by utilizing issues that are controversial (Noelle-Neumann, 1989) and tests the theory "in multiple issue contexts simultaneously" (Gearhart & Zhang, 2015, pp. 1-2). According to Yeric and Todd (1996) there are three categories of public interest issues. The first category, *emerging* issues, are issues that have recently arose to the public eye (Yeric & Todd, 1996). Once these issues have lasted a while they could become *enduring issues*, which have been noticed by the public for many years (Yeric & Todd, 1996). The final group of issues are those that tend to be relevant, dissipate, and arise again in a continuous cycle; these are called *transitory issues* (Yeric & Todd, 1996).

To comply with the research of Yeric and Todd (1996) and their three categories of issues, the researcher met with a group of three agricultural communications faculty to discuss which issues would be appropriate to focus on. Upon discussion, the following issues were selected to be the focus of this study: (a) organic agriculture, (b) federal food labeling, and (c) antibiotic usage in livestock.

Methods

Participants

To complete the purpose of this study, focus was given to the population of the student body of the Oklahoma State University Department of Agricultural Education, Communications, and Leadership. This population is comprised of 370 students representing 28 states ("Enrollment Data," 2017). The department is comprised of 259 (70%) females and 111 (30%) males ("Enrollment Data," 2017). Students in this department have self-reported themselves to be White/Caucasian (80.5%), whereas the remainder of students are made up of other races including 6.5% American Indian, 3% Hispanic, 1.1% Black/African American, .3% Asian, and .3 Nonresident Alien, with 8.4% listed as multiracial ("Enrollment Data," 2017).

Of the three possible areas of concentration in this department, 143 students (38.6%) list agricultural communications, 110 students (29.7%) list agricultural education, and 48 students (13%) list agricultural leadership as their first major. It should be noted with double majors in the department, there are a total of 189 studying agricultural communications, 128 studying agricultural education, and 48 studying agricultural leadership. The junior class is the largest with 100 students (27%), followed by 95 students (25.7%) in the senior class, 91 students (24.6%) in the sophomore class and finally, 84 students (22.7%) in the freshman class. Those studying agricultural education, communications, or leadership at OSU served as the target population of this study and was invited via email to participate. Of the total 370 students, 59 responded yielding a 15.9% response rate.

Although not ideal, a low response rate is expected because of the decreasing trend for average response rates across all disciplines, even though the method of disbursal itself has increased (Shehan, 2001). Even though many reasons for nonresponse could exist, survey overload seems to be the most occurring in the research (Baruch & Holtom, 2008; Shehan, 2001).

With mass amounts of surveys crowding inboxes, individuals seem to experience fatigue and "therefore refuse to respond to non-essential questionnaires" (Baruch & Holtom, 2008, p. 1142).

Many researchers agree higher response rates lead to more credibility and proper representation of a given population (Baruch & Holtom, 2008; Dillman, Smyth, & Christian, 2014), however, even in surveys with a high response can a degree of nonresponse error exist (Dillman et al., 2014). Dillman et al. (2014) continued to say "the common mistake sometimes made by novice surveyors is to consider response rate as an adequate indicator of whether nonresponse error exists" (p. 6). Since response rate is "an indirect indicator . . . The more important response quality indicator is nonresponse error, which occurs when the characteristics of respondents differ from those who choose not to respond in a way that is relevant to the study results" (Dillman et al., 2014). Therefore, the more important tactic is to make sure the respondents are properly representative of the overall population (Baruch & Holtom, 2008).

Overall, the sample of participants were comparable to the student population in the AECL department. The reported sex of participants was 79.4% female; compared to the 70% female group in the population. Race was also comparable with participants reporting 88.2% White; 5.9% Native American/American Indian; and 2.9% Hispanic. These compare to the population with 80.5% White; 6.5% Native American/American Indian; and 3.0% Hispanic. The population is divided by the following primary majors as 38.6% communications,29.7% education, and 13.0% leadership, whereas the sample reported 29.4% communications, 23.5% education, and 14.7% leadership with 32.4% listing as a double major. The major difference seen in the respondent pool compared to the overall population was the distribution of students' classification in school. The sample was comprised of 8.8% freshmen; 17.6% sophomores; 23.5% juniors; and 38.2% in the senior class; whereas the population is divided into 22.7% freshmen; 24.6% sophomores; 27.0% juniors; and 25.7% seniors. Basically, the senior class was over represented, whereas, the freshman class was underrepresented.

Low response rates tend to be problematic, but it is advised to publish these results because "researchers are not always interested in generalizing results to a population" (Privitera, 2017, p. 251). Blair and Zinkhan (2006) said this could be "to establish some external validity, researchers often use survey results to instead generalize to a theory, called theoretical generalization, or generalize to other observations, called empirical generalization" (as cited in Privitera, 2017, p. 251). When results have a strong foundation in existing theories, there is an extent in which researchers can be lenient regarding sample quality (Privitera, 2017). Since this study is rooted in Noelle-Neumann's theory, even with a low response rate, there could still be relevant results for future research.

Contact

Students in the department were contact via the departmental email list with an invitation to participate in the online survey that was designed using Qualtrics Software. After clicking on the link, participants were taken to the instrument. The first page of the instrument included informed consent to allow use of their responses for research in the agricultural education, communications, and leadership field; this page also informed participants the survey would take approximately 15-20 minutes to complete and listed an outline of what to expect. Two weeks after the initial email, two reminders were emailed out the Monday morning of the following two weeks.

It should be noted the initial email containing a link to the instrument was distributed to each individual list serve within the AECL department, meaning it was distributed to 608 individual emails including duplicate students and faculty. Henceforth, there is a possibility students could have responded to the instrument more than once. With the instrument being longer in length, it is assumed students only responded to the instrument once. Another assumption, regarding faculty, was made that they would notice the emails content targeting

students in the department. To remedy this error in distribution, the first and second reminder emails were sent out to a list of students in which duplicates and faculty were removed, but these limitations should be noted before proceeding.

Instrument Design

The three pages of the instrument, following informed consent, were the same with the only difference being the change in the agricultural topic at hand. Each agricultural issue presented participants with three sections of questions. One section on the first three pages allowed participants to rate the following scenarios where a student might have the opportunity to express their opinion: (a) sitting at the dinner table with your family, (b) discussing with other students in the classroom, (c) an advisory meeting with their academic advisor, (d) on the campus lawn with friends not involved in agriculture, (e) campaigning to other students passing by in the University Center, (f) sharing an article or status update on social media, and (g) interviewing with a state or national news channel. The five-point Likert-type scale represented student responses for seven items ranging from 1 (*extremely comfortable*) to 5 (*extremely uncomfortable*), with corresponding numbers of the scale in between; the scores for each response on this scale were totaled for a comfort level score, which was used to correlate other predictors with students' comfort in speaking up. Cumulative scores could range from 7 to 35.

Another section included a five-point Likert-type scale with responses that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants were asked to select the best response that demonstrated how they felt about each issue. The statements included (a) I believe this issue is highly controversial; (b) this issue is of high concern to my interests; (c) I am knowledgeable about this particular issue; (d) I enjoy engaging, discussion, and learning about this topic; (e) I have seen this issue presented in the news, on social media, or other sources quite often; (f) I have

strong opinion(s) about this issue; and (g) I would have an open mind when hearing a variety of opinions on this issue.

The next portion of the survey focused on participants self-efficacy. This section was evaluated using Schwarzer and Jerusalem's (1995) *generalized self-efficacy scale*. It was created to quantify a perception of one's self through predicting an individual's self-belief to adapt to stressful situations that arise in daily life (Schwarzer & Jerusalem, 1995). The scale's 10 items are laid out in the form of a Likert-type scale, ranging from 1 (*not at all true*) to 4 (*exactly true*); it is designated for the adult population, including adolescents, to tabulate a generalized self-efficacy score (Schwarzer & Jerusalem, 1995). The responses to the 10 items were totaled with a range of 10 to 40, with 40 representing a higher sense of self-efficacy than 10 (Schwarzer & Jerusalem, 1995).

The instrument concluded by asking participants to list their demographic characteristics including sex, ethnicity, age, classification in school, and home residency. Respondents were also asked to select from a list of agricultural experiences that applied to them; these experiences asked about their involvement in student organizations, their experience working on/with a farm, and leadership roles in agricultural organizations.

Reliability and Validity of Data Analysis

To evaluate each potential predictor, SPSS software was used to analyze data. Environment was evaluated by examining the frequencies of those who were *extremely comfortable* or *somewhat comfortable* in each of the seven scenarios listed in the instrument section. For reliability in the scale used for this predictor, which laid the basis for the following potential predictors, Cronbach's alpha was determined for each agricultural issue. According to George and Mallery (2003), a Cronbach's alpha greater than .70 is considered acceptable, greater than .80 is considered good, and greater than .90 is considered excellent. In this research,

Cronbach's alpha was determined to be .85 for organic agriculture, .90 for food labeling regulations, and .87 for antibiotic usage in livestock. Frequencies were also determined for the demographics of the respondents. In considering each cognizance factor and self-efficacy, correlations were determined using Pearson's correlation coefficient.

A limitation of this study was the reliability of the comfort level scores calculated from the Likert-type scale of the seven items examining student comfort to discuss in different situations. Although many researchers suggest more items provide greater reliability, no exact guidelines exist for number of items on a scale (Hinkin, Tracey, & Enz, 1997). It is also important scales are consistent, short to minimize biases formulated by fatigue, and that reliability can be attained (Hinkin et al., 1997). Therefore, the seven-item scale was developed to encompass different situations relevant to students. Hinkin et al. (1997) also suggested scales should be pretested, which was not done in this study.

In determining correlations for the potential predictors, a 0.05 p-value was set as a priori. Cohen's (1992) effect sizes were reported. Supplemental information is needed when using statistical significance because "it provides the reader with only a partial explanation of the importance or significance of the results" (Kotrlik, Atherton, Williams, Jabor, 2011, p. 133) and should instead present "the strength of association or correlation ratios" (Kotrlik et al., 2011, p. 133). Aarts, van den Akker, and Winkens (2014) conclude the addition of effect sizes need to be added when testing statistical significance. Cohen (1992) proposed "operational definitions small, medium, and large values for each that are at least approximately consistent across the different ES [effect size] indexes" (p.156). Those effect sizes are 0.10, 0.30, and 0.50, respectively (Cohen, 1992).

For reliability purposes regarding the generalized self-efficacy scale put forth by Schwarzer and Jerusalem (1995), no changes were made to the original instrument; it was merely

included as part of the instrument for this study. However, the scale for student comfort levels gained its reliability by running Cronbach's alpha for the scale in each of the agricultural issues. For organic agriculture, Cronbach's alpha was 0.849; for food labeling regulations, 0.901; and for antibiotic use in livestock, 0.872. Although there are differences among academics regarding Cronbach's alpha standard values, acceptable values range from 0.70 to 0.95 (Tavakol & Dennick, 2011). With recommendations by Tavakol and Dennick (2011), the correlation of each test item was computed and evaluated to see if it was needed. Upon evaluation, no items were removed or added to the scale. The scale was also evaluated by the panel of experts.

Findings

Findings Related to Objective One: Environment

Cumulative scores for student comfort in discussing *organic agriculture* ranged from 7 to 33; *food labeling regulations* ranged from 7 to 35; and *antibiotic use in livestock* ranged from 7 to 32. Table 4.1 shows the frequencies of the percentage of participants who felt *extremely comfortable* or *somewhat comfortable* expressing their opinions in the scenarios listed.

Table 4.1
Frequencies of Student Comfort Levels to Express Opinions in Different Environments

	Organic Agriculture	Food Labeling Regulations	Antibiotic Use in Livestock
Sitting at the dinner table with family.	88.9%	78.4%	94.1%
Discussing with other students in the classroom.	91.1%	80.6%	88.2%
An advisory meeting with academic advisor.	73.3%	73.0%	82.4%
On the campus lawn with friends not involved in agriculture.	77.8%	67.6%	82.4%
Campaigning to other students passing by in the University Center.	55.6%	51.4%	61.8%
Sharing an article or status update on social media.	77.8%	67.6%	73.5%
Interviewing with a state or national news channel.	42.2%	37.8%	52.9%

Note. Percentages represent the percentage of participants that felt extremely comfortable (represented with a 1) or somewhat comfortable (represented with a 2) discussing each respective agricultural issue in the following situations.

Participants reported they would be most comfortable with discussing organic agriculture and food labeling regulations with other students in the classroom (91.1% & 80.6%, respectively). Participants (94.1%) reported they would be most comfortable discussing antibiotic use in livestock while sitting at the dinner table with family. Participants indicated they would be least comfortable with interviewing with a state or national news channel across all three issues: 42.2% for organic agriculture, 37.8% for food labeling regulations, and 52.9% for antibiotic

usage in livestock. In other scenarios, 73-82.4% were comfortable discussing with an academic advisor on the three issues, 67.6-82.4% when on the campus lawn with friends not involved in agriculture, and 51.4-61.8% when campaigning to other students passing by the University Center. Participants were less comfortable discussing food labeling regulations than the other two issues in all categories.

Findings Related to Objective Two: Cognizance

Participants' comfort in discussing organic agriculture (r = -.312) and antibiotic use in livestock (r = -.428) had a statistically significant correlation with whether the participant considered the respective issues as of high concern to their interest. The relationships had a medium effect size, according to Cohen (1992). Participants' enjoyment of engaging, discussing, and learning about organic agriculture (r = -.409) and antibiotic use in livestock (r = -.420) had a statistically significant correlation with their comfort in speaking up about those two topics. The relationships had a large effect size, according to Cohen (1992). Participants who reported they were knowledgeable about organic agriculture (r = -.534) and antibiotic use in livestock (r = -.533) also had a statistically significant correlation with their comfort in speaking up about those two topics. The relationships had a medium effect size, according to Cohen (1992).

In considering food labeling regulations, there was one instance of a statistically significant correlation. Participants' comfort in discussing food labeling regulation (r = -.329) had a statistically significant correlation with the participant indicating they had a strong opinion about the issue. The correlation had a medium effect size, according to Cohen (1992) Participants' comfort in discussing organic agriculture (r = -.490) also had a statistically significant correlation with the participants' indication they had a strong opinion about the issue. The correlation had a medium effect size, according to Cohen (1992). For more detail regarding

correlations between each cognizance factor and comfort levels in speaking up about each issue, see Table 4.2.

Table 4.2
Cognizance Factor and Comfort Level Correlations

		Organic Agriculture	Food Labeling Regulations	Antibiotic Usage in Livestock
I believe this issue is highly controversial.	Pearson Corr.	-.155	-.074	.105
	Sig. (2-tailed)	.314	.663	.554
	N	44.0	37.0	34.0
This issue is of high concern to my interest.	Pearson Corr.	-.312*	-.207	-.428*
	Sig. (2-tailed)	.035	.218	.012
	N	46.0	37.0	34.0
I am knowledgeable about this particular issue.	Pearson Corr.	-.409*	-.261	-.420*
	Sig. (2-tailed)	.005	.119	.013
	N	46.0	37.0	34.0
I enjoy engaging, discussing, and learning about this topic.	Pearson Corr.	-.534*	-.269	-.533*
	Sig. (2-tailed)	.000	.108	.001
	N	46.0	37.0	34.0
I have seen this issue presented on the news, social media, or other sources quite often.	Pearson Corr.	-.267	-.171	-.127
	Sig. (2-tailed)	.073	.312	.475
	N	46.0	37.0	34.0
I have a strong opinion(s) about this issue.	Pearson Corr.	-.490*	-.329*	-.311
	Sig. (2-tailed)	.001	.047	.074
	N	46.0	37.0	34.0
I would have an open mind hearing a variety of opinions on this issue.	Pearson Corr.	-.078	.072	-.059
	Sig. (2-tailed)	.608	.673	.739
	N	46.0	37.0	34.0

Note. The scale for each statement ranged from 1 (*strongly disagree*) to 5 (*strongly agree*); correlations used the comfort level scores for each issue in Table 4.1.
*Statistically significant correlation at the 0.05 level.

Findings Related to Objective Three: Self-Efficacy

By using the generalized self-efficacy scale, student scores ranged from 27 to 40. Therefore, participants in this study indicated they perceived themselves to be self-efficacious. However, when determining the correlation between student comfort levels in speaking up and perceived self-efficacy, there were no statistically significant relationships regarding any of the three agricultural issues presented. Table 4.3 shows the results of the correlations.

Table 4.3
Generalized Self-Efficacy Score and Comfort Level Means Correlations

	Organic Agriculture	Food Labeling Regulations	Antibiotic Usage in Livestock
Pearson Corr.	-.159	-.295	-.225
Sig. (2-tailed)	.371	.090	.200
N	34.0	34.0	34.0

Note. No significance was shown to support the relationship between self-efficacy and comfort levels (Table 4.1) to speak at the 0.05 level; the scale for the generalized self-efficacy scale ranged from 1 (*not true at all*) to 4 (*exactly true*).

Findings Related to Objective Four: Demographics

The average student in this sample is a 21 year-old, white (88.2%) female (79.4%) in her senior year (38.12%) studying agricultural communications (50%) at OSU; she is from a rural farm area (47.1%), has worked on a farm (76.5%) and has participated in agricultural events and competitions (79.4%), including involvement and leadership in 4-H and/or the National FFA Organization (88.2%) and student organizations in the Division of Agricultural Sciences and Natural Resources (73.5%). With these percentages and the low response rate, it was difficult to determine whether demographics were a statistically significant indicator of willingness to speak up on the three topics presented. However, no statistically significant correlations were found among any of the demographic characteristics and participants' willingness to discuss the three

agricultural issues in the different settings. Table 4.4 shows the correlations between participant demographics and comfort in discussing the three issues.

Table 4.4

Demographic Characteristics and Comfort Level Correlations

		Organic Agriculture	Food Labeling Regulations	Antibiotic Usage in Livestock
Sex	Pearson Corr.	-.273	-.043	-.205
	Sig. (2-tailed)	.118	.811	.252
	N	34.0	34.0	33.0
Ethnicity/Race	Pearson Corr.	.176	.165	.083
	Sig. (2-tailed)	.321	.352	.645
	N	34.0	34.0	33.0
Age	Pearson Corr.	-.183	-.234	-.171
	Sig. (2-tailed)	.300	1.83	.343
	N	34.0	34.0	33.0
Classification in School	Pearson Corr.	-.168	-.195	-.140
	Sig. (2-tailed)	.344	.270	.438
	N	34.0	34.0	33.0
Major	Pearson Corr.	.068	-.165	.043
	Sig. (2-tailed)	.701	.351	.812
	N	34.0	34.0	33.0
Home Residency	Pearson Corr.	.022	.193	.228
	Sig. (2-tailed)	.902	.273	.201
	N	34.0	34.0	33.0

Note. No significance was shown to support the relationship between demographic characteristics and comfort levels (Table 4.1) to speak at the 0.05 level.

Conclusions

Participants in this research indicated they were less comfortable speaking up in situations in which they must take a side when engaging with the general public, such as campaigning on campus, interviewing with local media, and even posting on social media. In

environments that could be viewed as more fostering, such as at home or in the classroom, participants indicated were much more comfortable in discussing each agricultural issue. This means the classroom could be an ideal place to begin to prepare students for engaging with audiences and in circumstances in which they are less comfortable.

Overall, participants indicated they were not comfortable discussing food labeling regulations as compared to the other two issues. One who believes they are already a part of the group might have less of a fear of being isolated from the group than one who is new or just developing a relationship. Therefore, it is vital to understand students' comfort in discussing agriculture with others and the influence of the spiral of silence.

Student involvement with each agricultural issue seems to play a major role in a student's comfort level in speaking up. Interest, knowledge, and having a strong opinion on controversial, agricultural topics seems to be a key predictor to student comfort. It would seem then, if students are properly engaged in active learning about controversial agricultural topics that were made interesting to them, they would be more equipped to converse about their opinions on said topics. For instance, participants had lower responses for food labeling regulations, but felt more comfortable discussing antibiotic usage in livestock, even with a lack of strong opinions on that topic. This could be a related to Yeric and Todd's three categories of issues. For example, students would be more willing to discuss an emerging issue because an emerging issue would be more prevalent in the media and generate more interest as the general public opinion on the issue is formed.

Discussion

In this study, as opposed to much research in the industry, media prevalence did not have a statistically significant correlation with this group of respondents. Although a statistically significant correlation was not shown in this study for media prevalence, future research should

consider the role of media in the development of the general public and agriculturalists' opinions. As noted by Salmon and Neuwrith (1987) media prevalence could make way for future research as "the media acts as agents of social change by presenting one opinion as dominant or desirable and an opposing opinion as declining or undesirable" (p. 5).

Also, though self-efficacy did not show any significance in this study, it should be noted that self-efficacy is a perceived trait. Since Lasorsa (1991) said submission to silence might relate to s specific type of confidence, further research could examine a student's actual level of self-confidence, self-esteem, or an actual measure of a student's confidence regarding their willingness to speak up. Other specifics for future research in this area could consider Yeric & Todd's (1996) categories of issues, to determine whether students are more willing to discuss emerging issues as compared with enduring issues. This would allow for a more direct plan for preparing students in the classroom.

Because participants were more willing to speak up about controversial, agricultural topics in situations often seen as more fostering an open learning environment that welcomes students to ask questions is ideal for preparing students to be more comfortable in speaking up. Lasorsa (1991) concluded "it is possible for a person, suitably armed, to fight the spiral of silence" (p.140). If the spiral of silence can be observed to determine contributing predictors to a student's submission to this phenomenon, then agricultural educators can create environments that foster students' willingness to speak up. This willingness would in turn allow students to gain more out of their educational development to be better prepared to enter the workforce.

CHAPTER V

DISCUSSION

The purpose of this study was to determine the influence of the spiral of silence theory on agricultural education, communications, and leadership (AECL) students in sharing their opinions on current, controversial topics in agriculture. Discussed in this chapter are conclusions drawn to answer the three overarching research questions that guided this study, discussion regarding those conclusions, and recommendations for future research.

Conclusions

Conclusions for Research Question One

The first research question asked, 'Where do students feel their opinions align in regard to those of different social groups?' It is interesting to note students felt their opinions align more with those involved in agriculture, be it the general population in the industry or students studying the science. For example, when considering antibiotic use in livestock, participants seemed confident in reporting their opinions definitely aligned with the minority. This phenomenon could relate to the spiral of silence as students reported they believe they share the dominate opinion among other students studying agriculture and natural resources as indicated in this study; however, among other groups, students reported they believe their opinions dissipate from public

awareness, which could explain the uncertainty or indication they believe their opinions align with the minority.

As students studying agriculture, it was not surprising to find they experienced some uncertainty of their opinions in regard to the OSU student body as a whole, but it was very much evident. In regard to federal food labeling, AECL students indicated their opinions to be slightly more in the majority versus slightly in the minority as related to organic agriculture; uncertainty was split between the minority and the majority regarding antibiotic use in livestock. This could relate to Moy et al.'s (2001) findings that it is "the 'micro-climate' or *one's immediate circle of family and friends* that are most closely linked to one's willingness to speak out" (p. 18). Since students are more certain of where they indicate their opinions align with other students studying agriculture and natural resources, students could be more comfortable to discuss their opinions with this social group compared to the extended campus-wide community. The AECL students close circle could be represented by Agricultural Hall, the building that houses CASNR at OSU.

Conclusions for Research Question Two

The second research question asked, 'Are students willing to discuss controversial topics in agriculture or are they victims to a spiral of silence?' OSU AECL students indicated it is important to know the opinions of others regarding controversial agricultural topics, however, students are not necessarily concerned with knowing the opinions of other students on campus. Yet, when it comes to students in their agricultural classes, knowing the opinion climate seems to be more important. It is interesting to note students are not as concerned with the overall student population, but they seem to show a need to know where the general population of their community and state stand regarding agricultural topics. It would seem students experience a need to scope out the public opinion before making a decision to speak up.

Overall, participants indicated they were not comfortable discussing food labeling regulations as compared to the other two issues. One who believes they are already a part of the group might have less of a fear of being isolated from the group than one who is new or just developing a relationship. Therefore, it is vital to understand students' comfort in discussing agriculture with others and the influence of the spiral of silence.

Generally speaking, participants involved in this study were less comfortable speaking in situations in which they have to take a side when presenting to the general public, such as campaigning on campus, interviewing with local media, and even on social media. This being said, in environments that could be viewed as more fostering, such as at home or in the classroom, participants were much more comfortable to discuss each agricultural issue. This means the classroom could be an ideal place to begin to prepare students for the more difficult discussions or opportunities after their education.

Conclusions for Research Question Three

The third and final research question asked, 'What factors could have an effect on a student choosing to remain silent when given the decision to discuss controversial topic in agriculture?'

Student involvement with each agricultural issue seems to play a major role in a student's comfort level in speaking up. Interest, knowledge, and having a strong opinion on controversial, agricultural topics seems to be a key predictor to student comfort. It would seem then, if students are properly engaged in active learning about controversial agricultural topics that were made interesting to them, they would be more equipped to converse about their opinions on said topics. For instance, participants had lower responses for food labeling regulations, but felt more comfortable discussing antibiotic usage in livestock, even with a lack of strong opinions on that topic. This could be a related to Yeric and Todd's three categories of issues. For example,

students would be more willing to discuss an emerging issue because an emerging issue would be more prevalent in the media and generate more interest as the general public opinion on the issue is formed.

In this study, as opposed to much research in the industry, media prevalence did not have a statistically significant correlation with this group of respondents. Although a statistically significant correlation was not shown in this study for media prevalence, future research should consider the role of media in the development of the general public and agriculturalists' opinions. As noted by Salmon and Neuwrith (1987) media prevalence could make way for future research as "the media acts as agents of social change by presenting one opinion as dominant or desirable and an opposing opinion as declining or undesirable" (p. 5).

Also, though self-efficacy did not show any significance in this study, it should be noted that self-efficacy is a perceived trait. Since Lasorsa (1991) said submission to silence might relate to s specific type of confidence, further research could examine a student's actual level of self-confidence, self-esteem, or an actual measure of a student's confidence regarding their willingness to speak up. Other specifics for future research in this area could consider Yeric & Todd's (1996) categories of issues, to determine whether students are more willing to discuss emerging issues as compared with enduring issues. This would allow for a more direct plan for preparing students in the classroom.

Discussion

If those involved in agriculture, students or not, remain silent about their views on agricultural topics in settings with those not involved in the industry, people could become more removed from the farm than they already are. If students are not properly prepared to speak up for the industry and are more so taken over by a fear of isolation, the silence could lead to less diversity of opinion within the agricultural and natural resources industries.

With many different sectors in the agricultural and natural resources industry, it would be hard to think everyone would have the same idea or recommended practice. Students should realize there is not one distinct opinion held by those within an industry. This could be remedied in the classroom by teaching students about the diversity and differing viewpoints within the industry. It is possible student perceptions of the industry, or the general public, could be a misjudgment of actual public opinion congruence. As Kennamer (1990) wrote, "People are not very accurate perceivers of the opinions of others." Further research should consider the actual perception of the public to determine if there are unnecessary suppressions of students feeling in the minority, which could lead to submission to the spiral of silence.

By observing behaviors pertaining to the spiral of silence in relation to actual public congruence, academics can better prepare the younger generation to be more outspoken to continue the give and take relationship of communication. Glynn, Hayes, and Shanahan (1997) have concluded "future research on the spiral of silence should concentrate on observations of actual willingness to speak out as opposed to hypothetical willingness" (p. 461) because much of the research concerning the spiral of silence asks participants to imagine they are in a certain setting by painting a picture of the perfect scenario. By observing actual discussions, observing political debate forum, and other forms of public interaction, researchers will be better able to understand what actual responses people will have when deciding to speak up or remain silent.

Recommendations

Perhaps the largest limitation of this study was the low response rate. If this study was to be replicated, a higher response rate would be preferred. The literature does provide information to help increase the response rates for e-mailed surveys. Shehan (2001) found reminder messages increased e-mail survey responses by 25%; however, this was a tactic used in this study. Dillman et al. (2014) also suggested the use of reminder emails, along with respondent-friendly

questionnaires that are shorter in length and the use of incentives, two methods that were not used in this study, to increase the likelihood of population cooperation. Because the study focused on three different agricultural issues, a larger questionnaire had to be used. With the distribution of the instrument to each individual member of the population and to keep confidentiality, it was difficult to offer incentives without asking for participant information. Regardless of the many different techniques, Wang & Doong (207) say researchers will always "struggle for respondents' cooperation against the increased competition with marketers and spammers on the internet" (p. 7).

As for facilitating discussion in the classroom, educators should encourage discussion among agricultural students to develop a respect for diverse opinions, both in and outside of the industry. This discussion among students would allow for more opportunities to help seclusive students gain practice in speaking up in uncomfortable situations. In turn, students may gain a higher level of comfort over time to avoid submission to the spiral of silence.

A few areas for future research were listed in the two manuscripts and overall discussion included in this document. To reiterate a few, it would be interesting to determine how student involvement in Yeric and Todd's (1996) three categories of issues affect a student's willingness to speak up. Additionally, actual opinion congruence of the general public could be researched to determine whether some students are influenced by the spiral of silence because they unnecessarily consider their opinions as aligning with the minority opinion.

Summary

The purpose of this study was to determine the influence of the spiral of silence theory on agricultural education, communications, and leadership students in sharing their opinions on current, controversial topics in agriculture. This overarching purpose was broken down into two manuscripts. The first manuscript focused on student perceptions of the public opinion climate

regarding controversial topics in agriculture leading toward Noelle-Neumann's spiral of silence theory in that perception of the public opinion leads to a fear of isolation, the primary cause of a spiral into silence. The second manuscript used the spiral of silence theory to observe other possible predictors to a student's submission to silence regarding the same controversial agricultural topics used in the first manuscript.

The two manuscripts fall under the fourth research priority of the American Association for Agricultural Education National Research Agenda (2016) regarding "Meaningful, Engaged Learning in All Environments" (p.37), but specifically answers the third research question of the priority: "How can delivery of education programs in agriculture continually evolve to meet the needs and interests of students?" (p. 39). Lasorsa (1991) concluded "it is possible for a person, suitably armed, to fight the spiral of silence" (p.140). If the spiral of silence can be observed to determine contributing predictors to a student's submission to this phenomenon, then agricultural educators can create better environments and foster students' diverse needs to increase willingness to speak up. This willingness would in turn allow students to gain more out of their educational development to be better prepared to enter the workforce.

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APPENDICES

APPENDIX A - IRB APPROVAL

Oklahoma State University Institutional Review Board

Date:	Thursday, September 28, 2017
IRB Application No	AG1747
Proposal Title:	Predicting the spiral of silence among AECL students through their willingness to speak up
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 9/27/2020

Principal Investigator(s):

Scott Bohanon
Stillwater, OK 74078

Dwayne Cartmell
448 Ag Hall
Stillwater, OK 74078

Quisto Settle
Stillwater, OK 74078

Angel Riggs
440 Ag Hall
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1.Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2.Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3.Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4.Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

APPENDIX B – INSTRUMENT

Predicting the Spiral I

Thank you for choosing to participate in this study.

The information you give will help Oklahoma State University and the researcher further the knowledge in our field of agricultural communications. Please choose the best response for each question regarding your perspectives of the information presented. Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time. The records of this study will be kept private.

During the duration of this survey, you will be presented three (3) agricultural issues followed by a group of questions regarding your opinions on the issues themselves and some inquiries as to how willing you would be to discuss your opinions. NOTE: You will not be required to give you actual opinion on any of these issues. However, it is important for you to think about your opinion as you complete the questionnaire. After you have completed the questions about the three issues you will then be asked to answer some questions about who you are and your main source of news. Please remember to click the submit button at the end of the survey so we can assure your input for this research is included.

You may contact any of the researchers at the following addresses and phone numbers, should you desire to discuss your participation in the study and/or request information about the results of the study: Scott Bohanon, Graduate Student, Agriculture Hall 537, scott.bohanon@okstate.edu or (931) 209-2373. If you have questions about your rights as a research volunteer, you may contact the IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

Thank you again for participating in this study. Please, click NEXT if you choose to continue your participation. By clicking NEXT, you are indicating that you freely and voluntarily agree to participate in this study, and you also acknowledge that you are at least 18 years of age.

It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below.

Please answer the following items on this page regarding the agricultural issue presented and your opinions on this issue:

Organic Agriculture.

Select the best response that properly demonstrates how you feel about this particular agricultural issue.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe this issue is highly controversial.	○	○	○	○	○
This issue is of high concern to my interest.	○	○	○	○	○
I am knowledgeable about this particular issue.	○	○	○	○	○
I enjoy engaging, discussing, and learning about this topic.	○	○	○	○	○
I have seen this issue presented in the news, on social media, or other sources quite often.	○	○	○	○	○
I have a strong opinion(s) about this issue.	○	○	○	○	○
I would have an open mind hearing a variety of opinions on this issue.	○	○	○	○	○

Where do you believe your opinion(s) regarding this issue falls in line with the opinion(s) of the following groups?

	Definitely Minority	Uncertain, but probably Minority	Uncertain, but probably Majority	Definitely Majority
The general U.S. population.	○	○	○	○
Those involved in agriculture across the U.S.	○	○	○	○
Students of Oklahoma				

State University.	○	○	○	○
Students enrolled in CASNR at OSU.	○	○	○	○
Students studying agricultural communications at OSU.	○	○	○	○

How comfortable would you be discussing your opinions on this particular issue in the following environments?

	Extremely comfortable	Somewhat comfortable	Neither comfortable nor uncomfortable	Somewhat uncomfortable	Extremely uncomfortable
Sitting at the dinner table with your family.	○	○	○	○	○
Discussing with other students in the classroom.	○	○	○	○	○
An advisory meeting with your academic advisor.	○	○	○	○	○
On the campus lawn with other students you are friends with but not involved in agriculture.	○	○	○	○	○
Campaigning to other students passing by in the University Center.	○	○	○	○	○
Sharing an article or a status update on social media.	○	○	○	○	○
Interviewing with a state or national news channel.	○	○	○	○	○

Please answer the following items on this page regarding the agricultural issue presented and your opinions on this issue:

Federal Food Labeling Regulations.

Select the best response that properly demonstrates how you feel about this particular agricultural issue.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe this issue is highly controversial.	○	○	○	○	○
This issue is of high concern to my interest.	○	○	○	○	○
I am knowledgeable about this particular issue.	○	○	○	○	○
I enjoy engaging, discussing, and learning about this topic.	○	○	○	○	○
I have seen this issue presented in the news, on social media, or other sources quite often.	○	○	○	○	○
I have a strong opinion(s) about this issue.	○	○	○	○	○
I would have an open mind hearing a variety of opinions on this issue.	○	○	○	○	○

Where do you believe your opinion(s) regarding this issue falls in line with the opinion(s) of the following groups?

	Definitely Minority	Uncertain, but probably Minority	Uncertain, but probably Majority	Definitely Majority
The general U.S. population.	○	○	○	○
Those involved in agriculture across the U.S.	○	○	○	○
Students of Oklahoma State University.	○	○	○	○
Students enrolled in CASNR at OSU.	○	○	○	○
Students studying agricultural communications at OSU.	○	○	○	○

How comfortable would you be discussing your opinions on this particular issue in the following environments?

	Extremely comfortable	Somewhat comfortable	Neither comfortable nor uncomfortable	Somewhat uncomfortable	Extremely uncomfortable
Sitting at the dinner table with your family.	○	○	○	○	○
Discussing with other students in the classroom.	○	○	○	○	○
An advisory meeting with your academic advisor.	○	○	○	○	○
On the campus lawn with other students you are friends with but not involved in agriculture.	○	○	○	○	○
Campaigning to other students passing by in the University Center.	○	○	○	○	○
Sharing an article or a status update on social media.	○	○	○	○	○
Interviewing with a state or national news channel.	○	○	○	○	○

Please answer the following items on this page regarding the agricultural issue presented and your opinions on this issue:

Medicinal & Preventative Antibiotic Use in Livestock Raised for Human Consumption.

Select the best response that properly demonstrates how you feel about this particular agricultural issue.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe this issue is highly controversial.	○	○	○	○	○

This issue is of high concern to my interest.	○	○	○	○	○
I am knowledgeable about this particular issue.	○	○	○	○	○
I enjoy engaging, discussing, and learning about this topic.	○	○	○	○	○
I have seen this issue presented in the news, on social media, or other sources quite often.	○	○	○	○	○
I have a strong opinion(s) about this issue.	○	○	○	○	○
I would have an open mind hearing a variety of opinions on this issue.	○	○	○	○	○

Where do you believe your opinion(s) regarding this issue falls in line with the opinion(s) of the following groups?

	Definitely Minority	Uncertain, but probably Minority	Uncertain, but probably Majority	Definitely Majority
The general U.S. population.	○	○	○	○
Those involved in agriculture across the U.S.	○	○	○	○
Students of Oklahoma State University.	○	○	○	○
Students enrolled in CASNR at OSU.	○	○	○	○
Students studying agricultural communications at OSU.	○	○	○	○

How comfortable would you be discussing your opinions on this particular issue in the following environments?

	Extremely	Somewhat	Neither comfortable nor	Somewhat	Extremely

	comfortable	comfortable	uncomfortable	uncomfortable	uncomfortable
Sitting at the dinner table with your family.	○	○	○	○	○
Discussing with other students in the classroom.	○	○	○	○	○
An advisory meeting with your academic advisor.	○	○	○	○	○
On the campus lawn with other students you are friends with but not involved in agriculture.	○	○	○	○	○
Campaigning to other students passing by in the University Center.	○	○	○	○	○
Sharing an article or a status update on social media.	○	○	○	○	○
Interviewing with a state or national news channel.	○	○	○	○	○

The following questions will ask about your communication channels and how often you use them. Remember to answer each question honestly as you select the answer that best fits you.

I find the following communication channels to be useful for finding out what most people think about agricultural issues.

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Newspapers, magazines, and other print media.	○	○	○	○	○
TV news and radio.	○	○	○	○	○
Interpersonal discussion (face-to-face, phone calls, texting, emails, texting, etc.).	○	○	○	○	○
FaceBook, Twitter, and other social networking sites.	○	○	○	○	○

Please list any other media sources that you consider useful for finding out what people think about agricultural issues that were not listed in the previous question:

How often do you use the following communication channels to receive your news?

	Never	Once a month	Once a week	Daily	Numerous times a day
Newspapers, magazines, and other print media.	○	○	○	○	○
Local TV news and radio.	○	○	○	○	○
Interpersonal discussion (face-to-face, phone calls, emails, texting, etc.).	○	○	○	○	○
FaceBook, Twitter, and other social networking sites.	○	○	○	○	○
Other websites and online media. Please list those in this blank:	○	○	○	○	○

Rate how important it is to you to find out what the following groups are thinking about controversial agricultural issues/topics and what the majority opinion is.

	Important	Slightly Important	Neutral	Slightly Unimportant	Unimportant
My close family/friends	○	○	○	○	○
Other students with my major.	○	○	○	○	○
Other students in my agriculture classes.	○	○	○	○	○
Other students on campus.	○	○	○	○	○
Other people in my community or state.	○	○	○	○	○

Please select the best response for each item as you feel best represents you.

	Not True at All	Hardly True	Moderately True	Exactly True
I can always manage to solve difficult problems if I try hard enough.	○	○	○	○
If someone opposes me, I can find the means and ways to get what I want.	○	○	○	○
It is easy for me to stick to my aims and accomplish my goals.	○	○	○	○
I am confident that I could deal efficiently with unexpected events.	○	○	○	○
Thanks to my resourcefulness, I know how to handle unforeseen situations.	○	○	○	○
I can solve most problems if I invest the necessary effort.	○	○	○	○
I can remain calm when facing difficulties because I can rely on my coping abilities.	○	○	○	○
When I am confronted with a problem, I can usually find several solutions.	○	○	○	○
If I am in trouble, I can usually think of a solution.	○	○	○	○
I can usually handle whatever comes my way.	○	○	○	○

The following questions will tell us about the demographics of our population for this questionnaire. Please select the best response that represents who you are.

Sex:

- ○ Male
- ○ Female

Ethnicity/Race:

- ○ White
- ○ Hispanic/Latino
- ○ Black/African American
- ○ Native American/American Indian
- ○ Asian/Pacific Islander
- ○ Other, please specify: _____

Age:

_____

Classification:

- ○ Freshman
- ○ Sophomore
- ○ Junior
- ○ Senior
- ○ Graduate
- ○ Other: _____

Major:

- ○ Agricultural Communications
- ○ Agricultural Education
- ○ Agricultural Leadership
- ○ Double Major, please list both majors: _____

Which of the following describes where you are from?

- ○ Rural: Farm
- ○ Rural: Non-farm
- ○ Suburban
- ○ Urban

Which of the following have you experienced? (Select all that apply).

- ☐ I was raised on a farm.
- ☐ I have worked on a farm.
- ☐ I have visited a farm, but was not raised nor worked on a farm.
- ☐ I participated in agricultural events/competitions. Please type your highest level of participation (local, state, national, international). _____
- ☐ I was/am an active member of FFA/4-H.
- ☐ I served as an officer in FFA/4-H. Please type your highest level of participation (local, state, national, international). _____
- ☐ I am actively involved in at least one student organization in the College of Agricultural Sciences and Natural Resources.
- ☐ I am actively involved in a campus organization outside of the College of Agricultural Sciences and Natural Resources.

APPENDIX C – CONTACT EMAILS

To: AECL Majors

From: Scott Bohanon

Subject: Share Your Opinion

Date: TBD – Initial Email for Phase I

Attention Agricultural Education, Communication, & Leadership Majors:

We want to hear from you! With the semester just kicking off, there are a lot of ways to get involved on campus and this will help further the advancement of agricultural education and communications research. The purpose of this study is to identify the willingness to share and discuss opinions regarding current, controversial agricultural topics among AECL students and determine if we can predict a spiral of silence and discuss how to remedy that in the classroom. By participating you will not have to give your actual opinion on these issues, but we want to know what influences the openness of your opinions.

The questionnaire should take approximately 15-20 minutes to complete and your responses will be treated confidentially. The questionnaire can be accessed by clicking on this link:

[INSERT QUALTIRCS LINK]

By completing this questionnaire, you are consenting to have your responses used for research in the field of agricultural education and communications. If you are having trouble accessing the online format, please send me an email at scott.bohanon@okstate.edu and we will provide you will a paper copy for you to complete.

Your input in this study is extremely important to us and an immediate response is greatly appreciated. I understand the first of the semester can be overwhelming, but thank you for taking the time to complete this questionnaire. Without your cooperation, it would be impossible to acquire this valuable information. If you have any questions regarding this research project, please feel free to contact me. For additional information regarding human participation in research, you may contact the Oklahoma State University Campus Institutional Review Board at (405) 744-5700.

Sincerely,

Scott Bohanon, *Graduate Student*
Oklahoma State University

To: AECL Majors

From: Scott Bohanon

Subject: Share Your Opinion

Date: TBD – First Reminder for Phase I

Hello again AECL students,

Don't forget we want to hear from you! I am researching the willingness to share and discuss opinions regarding current, controversial agricultural topics among AECL students and determine if we can predict a spiral of silence and discuss how to remedy that in the classroom. REMEMBER: By participating you will not have to give your actual opinion on these issues. The questionnaire should take approximately 15-20 minutes to complete and your responses will be treated confidentially. The questionnaire can be accessed by clicking on this link:

[INSERT QUALTIRCS LINK]

If you have already completed the instrument, I thank you for your time and information. If you have not completed the questionnaire yet, please do so as soon as possible. One final reminder will be emailed out in a few days, but your input in this study is extremely important to us and an immediate response is greatly appreciated. If you have any questions feel free to shoot me a message at scott.bohanon@okstate.edu.

Thank you again for your cooperation. Have a blessed week!

Sincerely,

Scott Bohanon, *Graduate Student*
Oklahoma State University

To: AECL Majors

From: Scott Bohanon

Subject: Share Your Opinion

Date: TBD – Second and Final Reminder for Phase I

Hello again AECL,

Time is running out to give your input! This is your last chance to help us discover the willingness of AECL majors to share and discuss opinions regarding current, controversial agricultural topics. REMEMBER: By participating you will not have to give your actual opinion on these issues. The 15-20 minute questionnaire can be accessed by clicking on this link:

[INSERT QUALTIRCS LINK]

If you have already completed the instrument, thank you for your time and information. If you have not completed the questionnaire yet, please do so as soon as possible. Your input is extremely important to us. If you have any questions I can be reached at scott.bohanon@okstate.edu. This will be the final reminder regarding this portion of the study.

Thank you again for your cooperation and input.

Sincerely,

Scott Bohanon, *Graduate Student*
Oklahoma State University

VITA

CHRISTOPHER SCOTT BOHANON

Candidate for the Degree of

Master of Science

Thesis: STUDENT WILLINGNESS TO SPEAK UP OR REMAIN SILENT REGARDING CONTROVERSIAL TOPICS IN AGRICULTURE

Major Field: Agricultural Communications

Biographical:

Education:

Completed the requirements for the Master of Science in Agricultural Communications at Oklahoma State University, Stillwater, Oklahoma in December, 2017.

Completed the requirements for the Bachelor of Science in Agriculture at Tennessee Technological University, Cookeville, Tennessee in 2016.

Experience:

Graduate Teaching Assistant for the Department of Agricultural Education, Communications, and Leadership at Oklahoma State University, Stillwater, Oklahoma from January 2017 to December 2017.

Peer Mentor/Teaching Assistant for the School for Agriculture at Tennessee Technological University, Cookeville, Tennessee from August 2015 to May 2016.

Professional Memberships:

Secretary for Alpha Gamma Sigma – Delta Chapter Alumni Association, Cookeville, Tennessee from October 2015 to Present.

Lifetime Member of the National FFA Alumni Association since November 2011.

Member of the Association for Career and Technical Education since 2014.

Member of Young Farmers and Ranchers since August 2012.